Issue 132 • 18th May 1991 • 88p

WIN £500 of AMIGA software See page 58

NEW COMPUTER EXPRESS

FIRST NEWS • FIRST REVIEWS • BEST BUYS • YOUR WEEKLY GUIDE

AMIGA

CDTV UPDATE

THE FIRST ADD-ONS AND TITLES EMERGE

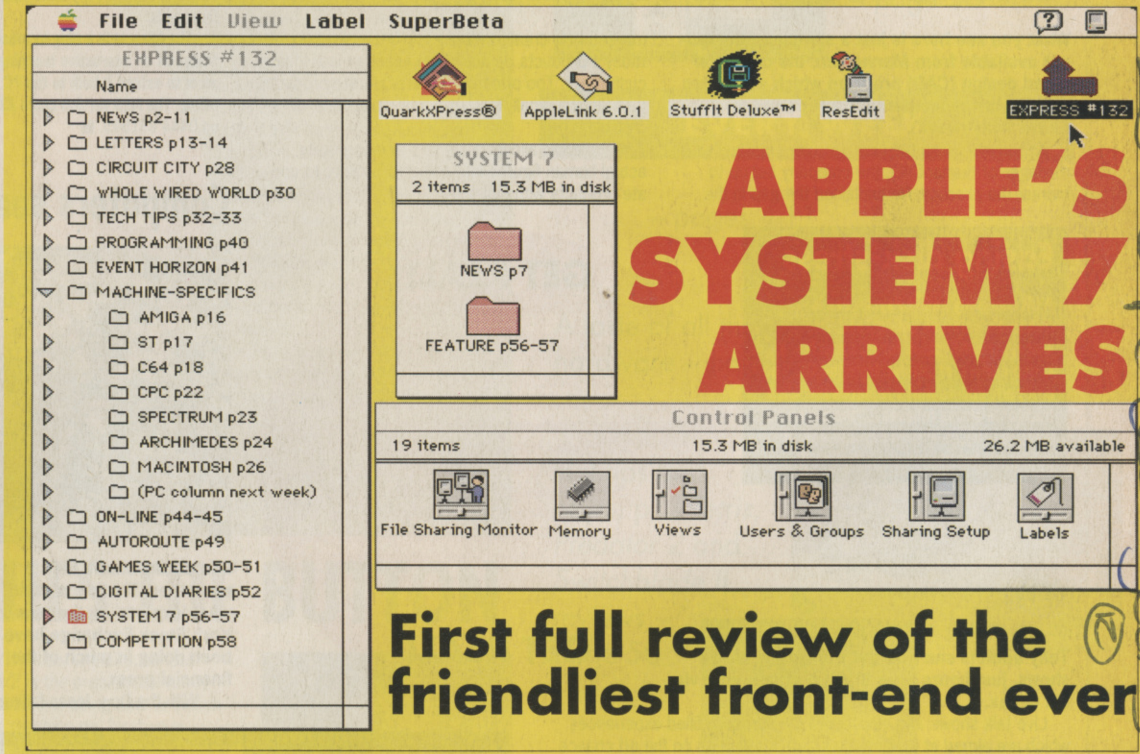
ATARI

MIDI MAYHEM

ALL THE NEWS FROM THE UK'S TOP SHOW

WINDOWS SMASHER!

WORLD EXCLUSIVE SEE PAGES 7,56,57


File Edit View Label SuperBeta
QuarkXPress®
AppleLink 6.0.1
StuffIt Deluxe™
ResEdit
EXPRESS #132
SYSTEM 7
2 items 15.3 MB in disk
Control Panels
19 items 15.3 MB in disk 26.2 MB available
File Sharing Monitor
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APPLE'S SYSTEM 7 ARRIVES

First full review of the friendliest front-end ever

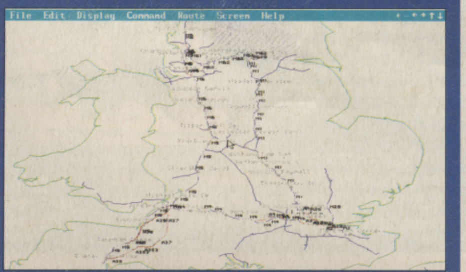
20 Copt Coe Scans

GAMES

PREDATOR 2

THE HUNT CONTINUES **PLUS** – A NEW TETRIS!

AUTOROUTE 4



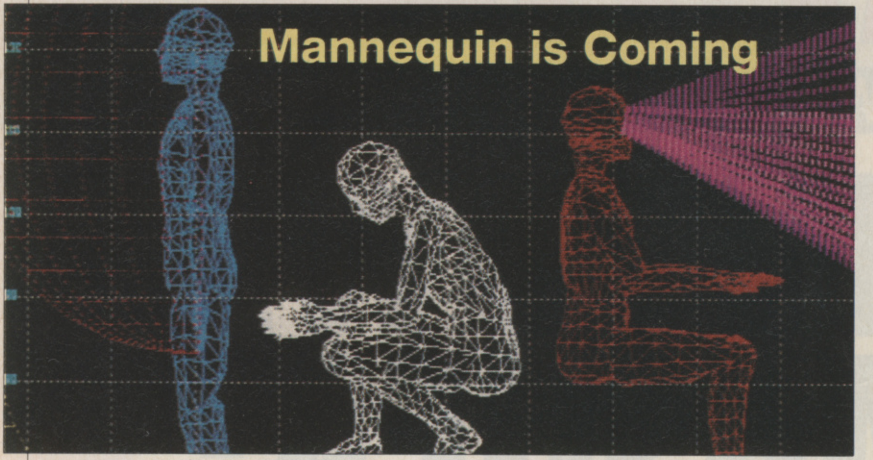
IS THIS THE ULTIMATE PC ROUTE PLANNER? – p49

DIGITAL DIARY

DO YOU NEED THE BEST IN ORGANISERS? – p52

Future PUBLISHING Your guarantee of value

Frontend



CAD GETS THE HUMAN TOUCH

What you see here is just a sample of the output available from *Mannequin*, the computer aided design (CAD) program which generates true human movement (first reported in *Express* last week).

Ken Goodman is the vice president and general manager of HumanCAD, the company set up to market the product. He explained the gap in the market: "We created *Mannequin* because many of today's products do not fit the needs of individual customers. Too often customers tolerate products that are too small, too large, uncomfortable, or unsafe."

Mannequin allows designers to incorporate actual human figures into projects in order to create products with humanity. ■

Easing disk-stress

A UK company called Psych-cess is distributin software called *Total Stress Management System* for PCs and Macs, which comes, of course, from the US. The company claims that it replaces the Uk's traditonal stress reliever ... "the pill bottle'. Price is £105.75. Phone 021-323 278, if you're not too stressed out that is. ■

GET REAL!
Free computers!

American multi-national AT&T is giving away fully equipped computer laboratories to 47 American colleges. This philanthropic gesture will cost the company a staggering $4.2 million.

AT&T takes charity seriously, having had an Equipment Donation Program since 1984. However, this system will only be supplied on an 'as needed' basis.

The new initiative will provide off-the-peg labs comprising 18 AT&T 6386SX/EL PCs linked via a local area network (LAN) to a host server, to selected educational establishments. Of course all the equipment will have AT&T plastered on it. ■

GET REAL!

Show starters or stoppers?

Telly addicts can now get transcripts of live shows, just hours after they go off air, sent via PC or fax.

Live talk shows and newscasts are adrenalin filled experiences which are aimed at holding the viewer's attention on the off chance that something untoward might happen. David Ike being laughed at on Wogan, and Grace Jones physically lashing out at the late Russell Harty are just two fine examples! Now you can use your PC to pour over the goings on, and analyse the contents.

An American company called Comtec, is offering PC users, the chance to sign on to what it calls the Topic Alert service. You pay $95 a month and are linked into a database of scripts which date back to 1968.

The user is treated to daily alerts if a topic of interest has come up in shows which they have missed. The data can be automatically downloaded, via fax or PC.

For more information call: 0101 203 964 0096. ■

• If the Americans have their way, you may be getting Tel on your fax!

Lucy in the Sky with Mindscape

If Pete Best owns an Amiga, a CDTV or a Nintendo Entertainment System (NES) he's probably kicking himself now. For those people who don't know, Mr Best was the man who was kicked out of the Beatles and replaced by Ringo. The reason he might be so narked is that Mindscape has bought the rights to 12 of the fab four's greatest hits for use on the teach-yourself-piano system, the Miracle.

The songs are: *Michelle, Here There and Everywhere, And I Love Her, She Loves You, (We All Live in a) Yellow Submarine, Strawberry Fields Forever, You've Got to Hide Your Love Away, Norwegian Wood, She Loves You, Hey Jude, Penny Lane,* and the druggy *Lucy in the Sky With Diamonds.*

The Miracle is a plug-in musical keyboard, developed in the United States as an interactive teaching aid for budding pianists. Plans are now afoot to extend it both to the PC and Amiga. A CDTV version is also in the offing. The NES version costs £249. For more information, call Mindscape on 0444 831545. ■

Computers send dour Dow down

If in doubt, blame the computer. That's exactly what 'experts' on the New York Stock Exchange have been doing in much of the financial press.

With the Dow Jones falling with sickening regularity of late, a call has been going up of "It's the automated computer trading!". Makes you wonder what they blamed for the Wall Street Crash of 1929 – the ticker-tape machine, perhaps? ■

LIVERPOOL RESOURCES

Liverpool City Council, once home of dynamic Del-boy Hatton, is in trouble again. This time it has been issued with a writ for non-payment for computer equipment.

The controversial council is accused of owing £9,137.72 to a Middlesex computer firm, Kalle Infotec. The equipment which was provided is still being used in council offices. An LCC spokesman said: "We will either take the matter to court or make an out of court settlement depending on what we see fit". ■

SIMON SCORES ROYAL MEDAL

The 18-year-old lad pictured here has just been awarded one of only 35 Royal Academy of Arts (RSA) medals given world-wide.

His name is Simon Robinson, his bronze medal is for achievements in computer literacy and information technology. Not only does Simon have to cope with the vagaries of a PC at the Barnsley Youth Development Centre, he also suffers from Cerebral Palsy.

Simon did not even know that he was being nominated for the award. Terry Connolly, the centre's training manager, carried out that duty and said: "Simon's disability means that it takes enormous patience for him to key stuff into a computer".

Simon, obviously pleased to have received the award said: "It's brilliant!" ■

Police point the finger at NEC

Police units worldwide can now buy into the Fingermatrix system which has become a staple of US law enforcement agencies.

NEC has agreed a marketing initiative which could see every detective from Charlie Chan to Inspector Morse, via Clouseau using the system.

Fingermatrix is used by officers as they book suspects. The possible perpetrators place their digits on a scanner which then prints the image to an FBI scale card. The data is then digitised and sent to the central mainframe on which are stored millions of other prints. Not only can input be achieved directly, matching is also carried out via the computer.

Although no announcements have yet been made about a PC version of the system, parochial police forces around the world are waiting with baited breath.

Forces in the UK may also be able to link Fingermatrix into the Polnet system to which the Government is considering paying a £5 million grant.

Polnet is an on-line system used in Hampshire at the moment. The additional funding, to which local MP and computer crusader Michael Colvin is giving his full backing, would save the work of 400 policemen a year. ■

GET REAL!

It's a laugh

A computer system has been designed to help people suffering from Parkinson's disease to smile again.

Research has shown that smiling is the most important facial expression in any relationship. It is a sad fact that many sufferers from depression, Parkinson's disease, strokes and speech difficulties, find it difficult to smile.

The new system analyses video-taped images of people smiling – the patient is filmed and the data is taken from these tapes and incorporated into a mathematical model of the face held on computer. The model can then be re-structured to turn a non-smiling face into a happy one on screen.

When the patient is shown their image, all they then have to do is to copy it and they're smiling.

It's certainly a step forward from the old system... which involved attaching electrodes to the victim's face. ■

GET REAL!

BUSH PUSHES THE BUTTON

Just before US president George Bush was admitted to hospital for an irregular heart beat, he was learning how to turn a computer on.

Unlike his wife, and First Lady, Barbara, who carries a computer with her wherever she goes, George is still getting to grips with the basics of digital technology.

• *Did the Super Mario Bros save the world from Dan Quayle?*

The new Whitehouse IBM PS/2 is the presidential tutor, lesson one being how to switch the machine on. Next up is getting to grips with *WordPerfect* 5.

Bush's long term plan is to get Whitehouse staff as computer literate as their predecessors were about tape recorders. So far it does not appear to be paying dividends. At a recent press conference, senior Whitehouse spokesman, Marlin Fitzwater, responded to a question about the Oval office PS/2 with a bemused: "What is a mouse?"

• *George Bush – Game Boy helped him get over his heart scare.*

STOP PRESS:

As *Express* was going to print this week, we received a press release from Nintendo cashing in on George's recent spell in hospital. It stated: 'Game Boy relieves presidential stress – Fast!'. It continued: 'Nintendo's hugely popular hand-held video game system was one way to help the President recover after his heart-scare while jogging at Camp David'. ■

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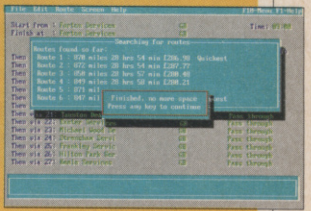
The latest PC route planner to hit the streets

Autoroute Plus 4 explores some new territory – page 49



```
Start from : Forton Services          GB          Time: 09:00
Finish at  : Forton Services          GB
Searching for routes
Routes found so far:
 Route 1 : 870 miles 28 hrs 54 min £286.90  Quickest
 Route 2 : 872 miles 28 hrs 54 min £287.77
 Route 3 : 850 miles 28 hrs 57 min £280.40
 Route 4 : 849 miles 28 hrs 58 min £280.21
 Route 5 : 871 mil
 Route 6 : 847 mil
Finished, no more space
Press any key to continue
Then via 21: Taunton Dea                          Pass through
Then via 22: Exeter Services          GB          Pass through
Then via 23: Michael Wood Se          GB          Pass through
Then via 24: Strensham Servi          GB          Pass through
Then via 25: Frankley Servic          GB          Pass through
Then via 26: Hilton Park Ser          GB          Pass through
Then via 27: Keele Services           GB          Pass through
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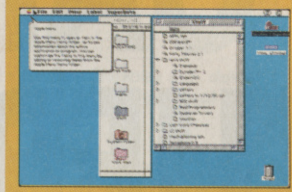
Electronic Organisers muscle in

Throw out your heavyweight Filofax and get yourself a lightweight digital organiser – page 52

Is this the World's friendliest frontend?



System 7 is finally here – page 56

EVERY WEEK

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What's new?

A taste of all the best software and hardware – pages 11

Games Week

Hot tips and news, plus *Tetris, Predator 2* and *Switchblade II* reviews – page 50

Competition

Your third chance to be a winner in our £5,000 Amiga software giveaway – page 58

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Arch-aeology

Arcventure is a new software package for the Acorn Archimedes and A3000. The program gives its users the chance to explore an archaeological dig.

Heralded as a simulation, *Arcventure*, sets players the task of toothbrushing their way through a Roman villa in order to excavate some valuable 'finds'. The game doesn't end there, however.

Once an object has been found, it's off to digger HQ, a hut, to consult a computer. This machine will provide data on the object, and even reconstruct it on screen. It can provide this service for all but three finds – it has no information on these objects. If you discover one of these, you are sent back in time to the Roman Empire to find out about the object by talking to the people who inhabited the villa. Once all three objects have been discovered, you are awarded a certificate.

Price is £35.19. For more information, contact Sherston software on 0666 840433. ■

They're the tops!

The American based Software Publishers' Association has just published its list of top selling games for the PC.

With MS-DOS-based machines growing in stature as a gamers' tool in the United States and Europe over the last year, the following list caused much interest. The Top 10 is as follows:

1) ***Eye of the Beholder***
Electronic Arts
2) ***Space Quest IV***
Sierra On-Line
3) ***King' Quest***
Sierra On-line
4) ***Wing Commander***
Origin
5) ***Death Knights of Krynn***
Electronic Arts
6) ***Sim Earth*** Maxis
7) ***Sim City*** Maxis
8) ***FlightSimulator***
Microsoft
9) ***Links*** Access
10) ***A-10 Tank Killer***
Sierra On-Line

IBM stays in South Africa

64.5 million IBM shares worth of voting power went behind a motion for the company to cut links with South Africa at its latest AGM.

This figure only amounts to a meagre 16 per cent of the total voting potential and is the sixth vote in as many years aimed at taking Big Blue out of apartheid territory, where it carried out £41 billion of business last year.

Following the vote, IBM chairman, John Akers said: "We are proud of how we are conducting our business in South Africa. Apartheid is abhorrent to us". ■

Virtually real future combat

Cyber Fight is the provisional title for a game that Electronic Arts reckons will be the first 'virtual reality' combat game for the PC.

Due in the autumn, *Cyber Fight* is a combat game in which contestants are kitted out in cybernetic suits. Using Gouraud shading technology for realistic graphics, the gameplay also accounts for gravity, friction inertia and elasticity.

It is expected to retail for £29.99. ■

£99 price set for official launch of Sega's hand-held

GAME GEAR HERE IN JUNE

The battle for hand-held games supermacy has finally been joined by Sega with its Game Gear machine.

Virgin Mastertronic, Sega's distributor in the UK and Europe has set a price of £99 for the Game Gear's June launch. Ideally it would have given it a price tag £20 lower, to compete with Atari's colour Lynx machine.

However, at the magical sub £100 price Sega is in direct competition with its arch rival, Nintendo, and its monochrome Game Boy.

The games to be bundled with the Game Gear will of course be licensed from Sega itself. They are as follows:

Columns, G-Loc, Wonderboy, Super Monaco Grand Prix, Dragon Crystal, Psychic World, and the critically acclaimed Disney licence, *Mickey Mouse*.

Whether or not Sega's great hope and proclaimed Mario-beater, *Sonic the Hedgehog* will find himself on the hand-held before the end of the year is highly unlikely.

Prices for the games will be either £19.99 or £24.99. Sega further claims that there will be 21 games out by the heavy buying period leading up to Christmas. This is more than likely as the company can call on the massive back catalogue of cartridges already released for the Mastersystem and Mega Drive. ■

• *The Game Gear – to be bundled with a host of Sega games.*

Shoot-'em-up with a purpose

The Executioner **is the first game from Hawk, a new label which promises "arcade games with more depth".**

The game is a sci-fi shoot-'em-up with elements of trading information gathering. As well as piloting a shuttle craft over alien terrain and blowing up enemy ships you also have to capture prisoners and collect supplies so you can fly to the next planet.

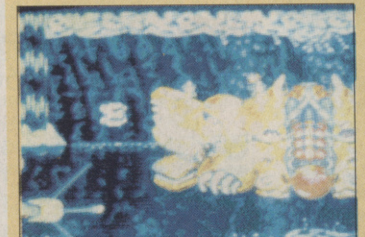
"There's actually a purpose behind blowing away everything in sight," said a spokesman for the company.

The Executioner will be available later this month at £25.99 for the Atari ST and Amiga. ■

Activision returns

Activision UK is dead. Long live Activision Europe.

Since the death of the UK branch, Activision's parent organisation has settled its European operation in Paris, and has just released six games for the ST, Amiga and PC.



• **R-Type II**: *more mind shattering alien hunting.*

R-Type II , the keenly awaited follow-up to one of the greatest blasters ever played is set for a July release on the 16-bit machines. It will retail for £25.99.

Hunter , a 3D vector graphics adventure-'em-up has already received attention in the media and was due to be released before the demise of Activision Europe. It and *Deuteros* will now be available from August at £30.99 and £25.99 respectively.

Beastbusters, is an arcade-style game which includes both vertical and horizontal scrolling, end of level guardians, and one or two player modes. It will be in the shops from July at a price of £25.99 for ST and Amiga owners.

Shanghai II -Dragon's Eye, a puzzle game based around Maj-Jong which uses 12 different layouts taken from the Chinese calendar. Cost is £35.99 for the Amiga and PC and you can get your hands on it from September.

• **Battletech:** *colourful carnage in the space age.*

Battletech - the Crescent Hawk's Revenge, Activision joins forces with Infocom in this space-age, 256 colour 'epic' with 25 scenarios spread across five planets. Available from September for the PC at a price of £35.99. ■

Fees rise to £75 – 'almost Latin American proportions', says MP

DATA REGISTRATION PRICE RISE SLAMMED

Labour MPs have attacked the rise in the charge for registration under the Data Protection Act as unfair and counterproductive.

The fee is due to rise by £19, from £56 to £77, on 1 June. Harry Cohen, Labour MP for Leyton in East London, claims that the fee will discourage registration since it has to be paid by any individual or company which stores personal information on a computer database. He also maintains that it is biased against small businesses and non-commercial organisations.

"It is in the public duty to register, so the fee should be kept at a minimum to encourage registration," he told *Express*. Cohen also raised the subject in the Commons earlier this month.

The registration fees are used to pay for the running costs of the office of Data Protection Registrar (DPR). The Registrar's office ensures that the provisions of the Data Protection Act are adhered to. Under the Act, individuals have the right to access any information about them which is held on an electronic database. The office is also responsible for investigating complaints relating to the act.

Like many other Labour MPs, Cohen believes it is wrong that you should have to pay to register and that it creates a situation which will lead to rapidly increasing fees. When the fee was introduced five years ago it was just £22. The forthcoming rise to £75 represents an increase of almost 350 per cent. "It is almost Latin American in proportions," said Cohen.

PROSECUTION

The Registrar's office does not feel, however, that the new fee will deter large numbers of people from registering. "We have been prosecuting people increasingly and more regularly, but the rise doesn't have much to do with it," says marketing manager Diane Bown-Wilson. "We've existed for a number of years now and the honeymoon period is over. People should be fully aware of the Data Protection Act by now."

She also points out that the fee covers a three year registration period: "That's just £25 a year, less than you would pay for a magazine subscription."

BIASED UNIFORM FEE

Cohen also feels that a uniform fee is biased towards large organisations, such as ICL, for which £75 is virtually insignificant. However, £75 for a small business or social club is a much larger chunk of their spending. Also, every school which holds a database will have to pay, and the accumulation of schools across the country will add thousands of pounds on to the education budget.

Registrar Eric Howe is sympathetic, but points out that this method of funding his office is actually laid out in the 1984 Data Protection Act. "Changing the way we are funded is a matter for ministers," he says.

Howe actually proposed a simplification of the payments system in 1989 which would have meant that only larger companies and organisations which dealt with "sensitive" information would have to pay. Similarly, a Home Office report last year concluded that an alternative method of funding the office should be found. So far the politicians concerned with changing the law have ignored both.

Data Protection Act 1984

CHAPTER 35

ARRANGEMENT OF SECTIONS

PART I

PRELIMINARY

Section
1. Definition of " data " and related expressions.
2. The data protection principles.
3. The Registrar and the Tribunal.

• The Data Protection Act: claimed to be unfair to schools and small businesses.

EUROPEAN DIRECTIVE

Howe cannot see the situation changing until at least 1994. This is because of the European Directive on Data Protection which is currently passing through various Commons committees at the moment and will not be finalised until January 1993. Its outcome will probably have effects on the Data Protection office, and Howe believes this will prevent any immediate changes taking place.

Express attempted to contact MPs on both the Government, and Liberal party benches this week to ascertain the level of support, or otherwise, which Mr Cohen is likely to receive.

At the time of going to press we had received no responses to our persistent telephone calls to the offices of Michael Colvin MP or the Right Honourable Paddy Ashdown – both who are known to take a keen interest in computer-related matters. We did, however, receive an official statement from the Home Office which merely states that the increased fee was necessary to meet the Registrar's costs.

Meanwhile, Cohen is set to bring up the subject in Parliament again when the new European Directive on Data Protection is debated in the Commons next month. ■

0898 299389

•Bruce Everiss: Organiser of the All Formats Fairs.

Fun at the fairs

The dates and venues of the next three *All Formats Fairs* have been announced. The fairs, which have proved to be popular with both 8 and 16-bit enthusiasts, as well as the occasional PC, and curiosity driven Mac users, will go ahead in the following places:

18 May – New Horticultural Hall, Greycoat and Elverton St, Westminster, London.

9 June – National Motocycle Museum, Coventry Rd, Solihull, Birmingham.

22 June – New Horticultural Hall

The organisers claim there will be 'Thousands of bargains and savings for all computer users'. ■

Businesses should compete for IT students, says report

Computer firms should be able to award degrees and compete for students the same as universities, according to a report from the Institute for Economic Affairs.

Written by Sir Douglas Hague, an academic at the Manchester Business School, *Beyond Universities* claims that students training for jobs in the "knowledge business" gain better experience from learning in a live, competitive situation. It suggests that many colleges and universities are bogged down in academic tradition and do not reflect the new high-tech age.

"The best preparation for becoming a scholar is now not necessarily a post in a university," says Hague.

He also says that many firms offer training schemes more innovative and relevant to the IT industry than universities, and that unless educational establishments move out of their "academic bunkers" they will become obsolete. ■

Graphs the easy way

Even the most artistically inept PC user will be able to produce professional looking charts, diagrams and documents thanks to *Graph-in-a-Box*.

Publisher Affiliated Software reckons the package is the easiest to use business graphics software in the world. It has data capture functions which allow statistics to be taken from other files and transformed into presentation graphics.

There are 15 chart types and nine fonts which can be printed out or exported to other Desktop Publishing and word processing packages. Graph-in-a-Box costs £250 for the single user version and £950 for the network version for up to five users.

Contact: Affiliated Software on 0273 606125. ■

• Money for old chips. Could you cash in on HP?

PC trade in on HP

Hewlett Packard is offering trade-in deals on old PCs. The company will give up to £330 to purchasers of its Vectra series computers on receipt of any other PC.

The offer will run until the 31 July and covers the following machines: the Vectra QS/16S (£3640.15), QS/20 (£3979.72), and the 386/25 (£4915). In the case of the 386/25, you will receive the full £330 no matter whether you hand in a PC1512 or a Compaq 386.

The trade-in, however, does not extend to the new Vectra 486SX which Hewlett Packard is soon to launch. ■

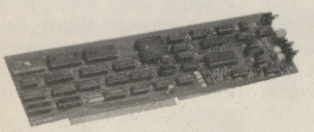
LANs slide

Nearly three working months a year are lost due to failures in Local Area Networks (LANs) according to a report published this month.

Consultancy firm, The Networking Centre surveyed 66 companies throughout the UK. It discovered that the average LAN crashes 20 times a year with over fours hours of 'downtime' wasted each time.

Even the company itself was stunned by the results. It did however, refer to an American survey carried out by Infonetics, which had produced very similar conclusions. Following criticisms of the survey, The Networking Centre's senior consultant, Clive Semple said "I find the figures hard to believe myself". ■

Sound buy for the Amiga



• The AD2105 from SunRize. It offers 12-bit sampling and SMPTE time codes.

An upgrade of the acclaimed *Audiomaster III* sample editor is among the new range of powerful audio peripherals for the Amiga from Sunrize.

Audition 4 is an advanced 8-bit sample editor which adds to the features all ready available on *Audiomaster III*.

Now you can record direct to floppy disk, save executable sounds and use real time filters. The program is also more compact than its predecessor, taking up half the amount of memory space, but also quicker.

Also in the range is *Studio 16* which turns an Amiga 2000 or 3000 into a professional digital audio workstation capable of recording hours of music to hard disk synchronised with a time code.

The final package is *Perfect Sound 3*, an 8-bit stereo sampler which connects the Amiga to a CD player, radio or microphone via the computer's printer port. Bundled software allows you to record and edit any sound and you can control the left and right channels individually.

All these products will be available in the UK through HB marketing from next week. Pricing has yet to be announced, but they are currently retailing in the US for around $100 each.

Hardware add-ons are also on the horizon with the AD2105 12-bit sampler card which makes use of *Studio 16* software.

The AD1016 completes the range. A 16-bit card it offers MIDI in/out and SMPTE compatibility.

For more information call HB Marketing on 0753 6860000. ■

Holograms and rainbows combine to create new chip

LIGHT FANTASTIC!

Scientists working at IBM in the United States have discovered a polymer with potentially the same qualities as fibre optic systems.

The four scientists, W E Moerner, Stephen Ducharme, J Campbell and Robert J Tweig, have been working on the project at IBM's Almaden research and developement centre in San José.

The polymer's constituents factors are derived from materials found in the photoreactive cells of photcopiers and laser printers. However, a new, and as yet unnamed, epoxy also enters the equation. The combination of these ingredients produces the revolutionary polymer which possesses the highly sought after photorefractive (PR) qualities only previously found in crystal-based systems.

The polymer's qualities allow it to act as a 'net' which captures the electronic patterns formed as laser beams cross within it.

The information which is caught in this net behaves in a similar way to a hologram. The potential for data storage goes far beyond this simple analogy however. The IBM team explained to the Materials Research Society meeting in April that up to 100 holograms, each of which can contain one million bits of data, could be stored on one miniscule area of the polymer. Their estimate was that this slice would measure only 2mm in diameter.

• The PS/2 486: IBM is now developing technology which will make the 80486 look pedestrian

While the commercial applications of this new technology are still five to ten years away, it is thought that IBM is allready making feasability studies into possible large scale production.

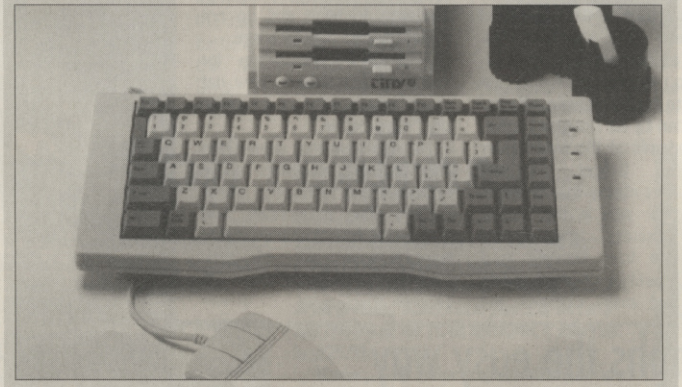
The long term effects of this potentially low-cost, high powered storage and data transmission media can only be imagined. IBM's discovery comes at the same time as developers at Texas Instruments demonstrated a chip which uses light instead of conventional electrons to hold and transmit data. TI's discovery came out of an attempt to combine two previously incompatible systems - silicon, and gallium arsenide (GA).

The new chips are called Optoelectric Integrated Circuits (OEICs). Each one makes use of eight GA infra-red light emitting diodes (LEDs) combined with CMOS-based silicon circuitry. The ability to use light for the transference of data has allowed the developers to bridge the previously unbridgeable gap between GA and silicon, and to actually speed up the rate of data interchange.

The basic process which led to this discovery was invented in the laboratories of Texas Instruments as far back as 1988. It was then called 'co-integration'. The company hopes that this advance in chip design will enter the commercial sphere within the next ten years.

The combination of IBM's new polymer, and Texas Instruments' gallium arsenide/silicon light bridge could well bring indefinable benefits to users in years to come. ■

Smallest PC Ever



• The Tiny PC : Is it a palmtop or a desktop?

A new computer company has launched itself into the marketplace with what it claims to be the world's smallest desktop computer.

The Tiny, from Tiny Computers Limited, has a footprint about the size of an A5 piece of paper. It has an 81-key keyboard and the graphics are CGA and Hercules compatible. It comes with a TV PAL modulator so that it can be linked to a television as well as a standard monitor. It is available in a variety of configurations from the 10MHz TC1 with a single floppy drive for £299 to the 12MHz TC3 with a 40Mb hard disk and floppy drive for £599.

Tiny Computers Limited can be reached on 0737 779511. ■

Secure-IT

Businesses can now have their computer systems checked by government approved experts, for a fee.

The consultants are known as Commercial Licensed Evaluation Facilities (CLEFs). And have been appointed by the Department of Trade and Industry (DTI) together with the Communications Electronics Security Group (CESG). Companies will have to supply the CLEFs with details of installed computer security systems so that future threats, and the correct defence against them, can be properly evaluated.

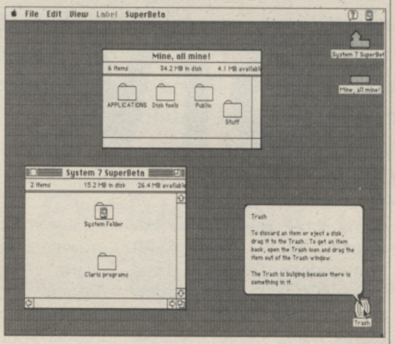
The DTI hopes that the CLEFs will eventually be able to build up a catalogue of certified security products. The project has taken two years to develop and brings the UK in line with other European countries.

At the time of going to press the DTI had not confirmed price, nor even a pricing scale for the CLEF service.

For more information call the UK IT Security and Evaluation and Certification Scheme on 0443 821877. ■

Apple's lastest operating system is widely acclaimed

SYSTEM 7 LAUNCHED



Trash

To discard an item or eject a disk, drag it to the Trash. To get an item back, open the Trash icon and drag the item out of the Trash window.

The Trash is bulging because there is something in it.

The Macintosh's new operating system and front end, System 7, is now available from Apple Centres at price of £40.

May 13 saw the simultaneous worldwide launch of the eagerly awaited O/S, which has been in developement for over two years. System 7's eventual public release follows numerous delays which Apple has blamed on "technical difficulties".

System 7 was designed by Apple's software engineers at its Cupertino, Californian HQ.

The basic WIMP (Windows Icons Mouse and Pointer) interface which is the hallmark of the Macintosh has been retained, with a 3D look added for users of colour machines.

The upgrades to the operating system extend far beyond cosmetics however. Refinements have been made to networking, font/typeface installation, application launching. Context sensitive help has also been added. These changes extend to all Mac computers from the top of the range IIfx, down to the entry level Mac Classic.

One area which is expected will be heavily influenced by System 7 is that of Windows 3.

According to Arlette Cox of Microsoft who spoke to *Express* this week: "I must make it clear that with Windows and the Mac operating system, we do not compete against Apple. In fact the release of System 7 gives Apple a great opportunity to compete with us", in terms of future improvements to Windows, Ms Cox has this to say: " The way in which System 7 totally hides the operating system from the user is obviously impressive. I would like to see Windows picking up on some of the graphics improvements to System 7. Generally, though, I think this is going to be a good year for Microsoft in the Mac world. We have nine planned before Christmas. And yes, all of our product upgrades for the Mac will be compatible with System 7 devices such as Publish and Subscribe."

Applehas in fact stipulated that any new software developed for the Macintosh range will have to contain System 7 compatible devices. The two major examples of such System 7-friendly options are the context sensitive Balloon Help system, and the innovative Cut&Paste upgrade - Publish and Subscribe.

In terms of future developments, it is expected that minor upgrades to System 7 will be forthcoming before the end of the year. These will appear as System 7.01, .02, and so on, up until the release of 7.1 - the first major enhancement sometime in 1992. Apple has not stopped there however; statements made by the development team make it clear that System 8 is even now in the planning stages. ■

System 7: the upgrades and innovations detailed

System 7 comes with n obvious changes to its predecessor. While you can read the full, world exclusive review in this week's Express, here are the details:

- **Macs with memory management chips can now make use of virtual memory. Essentially this means that a Mac with an 80Mb hard drive can convert that 80Mb into useable RAM. This does not apply to the Mac Classic, SE, and Plus.**

- **Publish and Subscribe takes over from Cut&Paste on the desktop. This is a 'live' system which can be shared by applications, and automatically updates data. All Macs.**

- **Balloon Help. This interactive system is context sensitive. Apple has stipulated that all new software developed for Macintosh computers must be able to use Balloon Help. All Macs.**

- **Process Manager is the replacement for the previously optional Multi-Finder background application. It allows pseudo-multitasking to be carried out. All Macs.**

- **Built-in networking. Previously users would have to buy additional software to make use of the Macintosh's LocalTalk system. System 7 does not need additional software. All Macs.**

- **Apple Menu'. At the top left hand side of the Mac screen is an Apple symbol which acts the icon for the Apple Menu. System 6's Apple menu could only launch desk accesories such as the calculator. System 7 allows lauching of any application. All Macs.**

- **File organisation. The files within desktop folders can be viewed by clicking on a button rather than opening the folder itself. All Macs.**

- **Cosmetic changes. A 3D look has been given to the desktop. Not mono Macs such as the Classic, SE and Plus.**

- **Font installation: previously, loading new typefaces for use in Macintosh-based applications such as Quark *EXpress* and Aldus' *Pagemaker*, entailed installing them using *Font/DA Mover*. System 7 acts in an intelligent manner, automatically installing the fonts.**

For the world exclusive review of System 7 turn to page 56.

Massive Mac screen makes its debut

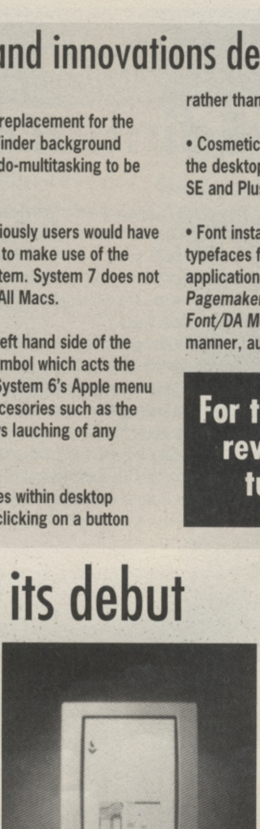
The new version of Radius' A4-sized Full Page Display (FPD) monitor has hit the market thanks to the success of the new Mac Classic and LC.

The monochrome Radius FPD can be pivoted for use in both landscape and portrait modes. It provides 78 dots per inch (dpi) resolution compared to the 72 dpi available as standard on the Mac Classic.

A whole A-4 page can be displayed in its entirety without the need for scrolling, with text large enough to read easily. The new model is specially designed to suit the needs of Classic, LC and Si users, but will also support the rest of the Macintosh range.

Featuring a non-glare screen and an optional tilt and swivel base, the FPD comes with RadiusWare display utility software. The original FPD was released in 1986 to accompany the MacPlus and SE, but was withdrawn as their popularity declined. The FPD for the Classic retails at £899 while the LC version costs £959.

Models for the machines in the Macintosh range - the Si, SE, IIcx, and IIfx - cost up to £1208. Radius can be contacted on 081 200 8282. ■



• The FPD monitor: an A4 page can now be shown on the Classic.

System 7 to Excel

The first batch of System 7-friendly software has also been announced with Microsoft leading the way.

Its *Excel* spreadsheet has been upgraded to version 3, and according to Microsoft, to fully implement the new Excel, users will "require System 7".

A major change, is that 2Mb as opposed to 1Mb of RAM is now required to run *Excel*.

Price is £345, although a free upgrade is available to users who bought the spreadsheet after January this year. For more information contact Microsoft on 0734 500741. ■

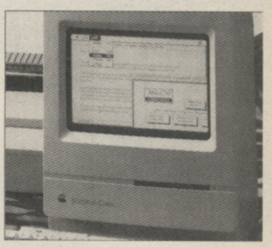
Full motion Macintoshs

A new CD-ROM based encyclopedia has been launched for the Mac. *The Dictionary of the Living World* is claimed to be the first CD to arrive in the UK which uses full motion video. 20 video clips are included on the CD. Users can also edit and add entries.

For those many Mac users without access to a CD-ROM drive, there is *The Dictionary of the Living World Lite*, on floppy disk. It contains the full text of the CD-ROM version, as well as 1,000 black and white photographs. Price has not been set on this product as yet.

Price for *The Dictionary of the Living World*. is £205.62. The UK distributor for this product range is Kimtec (0202 888873). ■

Classic costs



After claiming that sales of the Mac Classic have sky rocketed in the past three months, Apple is now predicting a drop in profits.

In fact sales of the Classic and the other low-cost Macs appear to have a great deal to do with the fall in profits.

Apple is blaming the losses on the fact that a larger percentage of its sales have been taken up by low-end machines, rather than the pricier IIcx and IIfx.

The weakness of the dollar in Europe is also quoted as a factor in the financial fall.

However, Apple is quick to point out that actual volume of sales of its machines are still very healthy.

It quotes an 85 per cent increase in sales in the first and second quarters of 1991 compared to the same period last year.

"The lower priced products succeeded more than we imagined and the product mix is moving towards the low end and the profit margins there are slimmer," explained Christopher Escher of Apple public relations.

Apple's bad news follows on from IBM's statement, made last month, that it lost money for the first time in its history.

This was also partially blamed in the fall off in sales of its high-end products such as mainframes, and a bad dollar exchange. ■

NIBBLES

School wins CDTV

A comprehensive school in County Armagh has won a CDTV as the first prize in Commodore's Business Education Challenge. Members of the winning team from Lismore Comprehensive had to prepare and execute a marketing plan for their school. The school is the first to receive a CDTV, which was officially launched last month.

HP-in court

The Adamax Corporation has filed an antitrust suit against the Open Software Corp and its sponsors, including Hewlett Packard. The company is accusing them of acting as an illegal cartel conspiring to fix software technology and set price ceilings in other markets.

Portable Olivetti

Olivetti will be setting up 20 'Portable Centres' to market its new range of portable and notebook computers launched this month. The centres will be staffed by Olivetti trained sales assistants. Prices for the new portables range from £1,119 to £3,199.

The big screen

Mitsubishi has launched a very high definition, 35 inch monitor. Designed for presentation uses it reduces distortion caused by the curve at the edges of the screen by automatically correcting pixel shapes at those areas. Compatible with most PC, PS/2, Macintosh II and Unix-based workstation high-resolution graphics cards, the monitor will cost about $2,000 when released in July.

Grey Gold imports

Grey imports of Golden Image software have entered the UK following supply problems the company had earlier this year. Golden Image is refusing to provide any form of help, advice or warranty to anyone who buys these illegal copies. Many of the grey imports are not the UK versions of the software.

LaserFax

Hewlett-Packard has launched the LaserJet Fax Accessory, a stand alone device which allows faxes to be printed out on any laser printer. It sits between the PC and the printer, and if the printer is not on it stores up incoming pages in a buffer that can hold up to 13 pages. A 1Mb memory upgrade allows storage of up to 60 pages. It retails for $1,895 in the US. ■

CDTV's launch is quickly followed by add-ons galore

CDTV: THE EXTRAS

Some three weeks after the launch of the £599 Commodore Dynamic Total Vision (CDTV), more details are emerging of the optional extras being made available for the system.

In line with Commodore's marketing policy, which is designed to appeal to general high-street consumers rather than computing enthusiasts, the add-ons will be known as 'accessories'. Heidi Halliday, Commodore UK's marketing assistant, told Express," We're calling the add-ons 'accessories', they are peripherals but they're known as accessories because CDTV isn't a computer". To further consolidate the product's positioning as a household device, Commodore is also reputed to be spending £6 million on a press and TV advertising campaign.

Jonathan Anderson, Commodore's retail marketing manager, confirmed that a range of accessories will be available by September.

First up will be an infra-red mouse, codenamed the hamster -'because it hasn't got a tail', closely followed by an infra-red trackball, with connections for joysticks, and an infra-red keyboard. Prices are as yet unconfirmed. By the end of the year, the company hopes optional floppy drives and printers will be available, although as yet, the CDTV specification doesn't allow for hard disk connection. But as Anderson added," You will be able to do all the things you can do on your A500 as long as you add a floppy drive and keyboard".

He also intimated that connectivity software for networking groups of CDTVs together for use in schools is in the pipeline. A built-in genlock will be also be offered, as an authorised fitment, along with a personal memory card drive. This will allow users to load and download data from credit-card sized wafers each capable of storing up to 512k of code. These memory cards will comprise both ROM and RAM versions, thus opening the possibility of releases of applications in card format. 64k, 256k and 512k versions will be offered which will enable users to save preferences, game positions and scores. Using the cards, the operator will also be able to switch off CDTV and resume an application at the point left simply by switching on and re-inserting the card.

• CDTV: Q. when is an add-on not an add-on?- A. When it's an accessory.

The £5 million advertising campaign, scheduled to begin in the run up to Christmas will be accompanied by the catch-phrase, "That's one way of looking at it".

The campaign will take the form of two adverts, 'Mirror' and 'Picture' which will stress the machine's high quality graphics possibilities. A further £800,000 will be spent on advertising in colour supplements and specialist press. Details of the firm's TV advertising plans have yet to be decided. ■

US chip chat offends Japan

A statement made by the chairman of the US Senate finance committee, Lloyd Bentsen, has produced a storm of protest in Japan.

On a visit to Semtech, the US government funded semiconductor project, Bentsen claimed that seven Japanese firms were keeping advanced semiconductor information from US companies.

He then went on to say that American chip manufacturers, such as those involved in the Semtech project, were not receiving valuable data relating to processing semiconductor wafers, due to a Japanese strategy of world domination.

Bentsen continued by accusing the seven Japanese companies of inflating prices charged to American companies, by up to 30 per cent compared to those charged in Japan.

Reaction from Japan has been swift and distinctly angered. The Electronic Industries Association of Japan (EIAJ) called Bentzens claims "ridiculous".

Hitachi, one of the firms named by Senator Bentsen, stated: "If we did receive an order, we would provide the equipment". It backed up this statement by saying that no such order had ever been received. ■

Amiga animates Edinburgh 1991

This year's Amiga Animation exhibition and competition is to be hosted by the Amiga Centre Scotland from August 11 to 31.

The 1991 event is fourth of its kind to be run. Last year's final exhibition of the winning entries featured 11 different categories, and 38 pieces of work. The eventual champion animator was Eugene Messina with his *Main Video*.

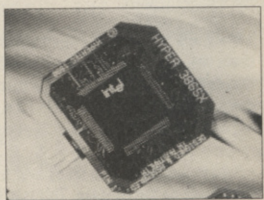
While Messina's work was widely accepted as being of excellent quality, and the obvious winner, the general standard of entries was poor, with amateurish attempts mixing in with corporate videos. Amiga Centre Scotland is looking forward to a healthier selection this time around.

If you would like to take part in what has become an international event, it coincides with the Edinburgh Festival, then your entries should be received by July 31. Send them to the following address:

Fiona Shivas, Animation Competition, Amiga Centre Scotland, 4 Hart Street, Edinburgh, EH1 3RN Telephone 031 557 4242, or fax 031 557 3260. ■

• A screen from Main Video, *1990's animated Amiga masterpiecee*

Intel's next generation



• Faster, bigger and cheaper. Intel's 486 upgrades are announced.

A 66MHz version of Intel's 486SX chip, nicknamed Igor, is rumoured to be near its release date. And it's the fastest yet.

The 486SX chip which was the star of last month's Which Computer Show, and which is already being used as the heart of PCs from IBM, AST and Hewlett Packard, runs at 20MHz. The new version beats its predecessor in terms of speed and the number of instructions it can carry out - 55 million per second (MIPs), compared to 16.

A 50MHz version of the chip has been demonstrated to the press, and is scheduled for release in June this year. Intel has also showed basic plans for a massive 100Mhz version of the chip.

This will be the first true testbed for Intel's eagerly awaited, and inevitable, 586 processor which is widely believed to be timetabled for a 1993 launch. ■

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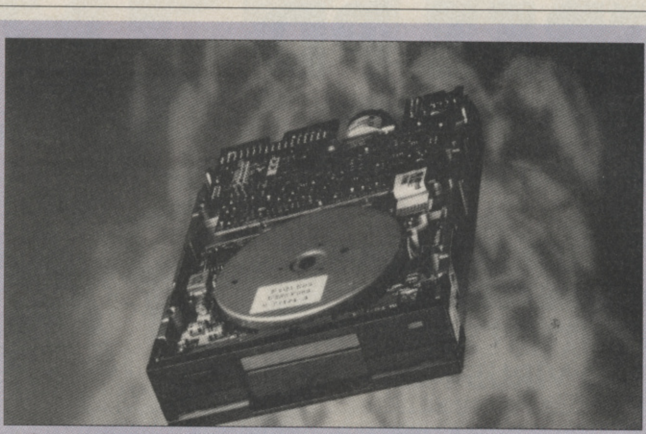
A page of news aimed specifically at people who don't wish to waste time searching for new product releases and updates. From now on this page will reflect all of the most up-to-date hardware and software launches, from 486SX PCs to modems, from keyboards to CD-ROM drives, in an at-a-glance style.

Each piece of information has been carefully examined for both newsworthiness, and information value. We will give you the low down on price, technical specifications, and availability as the news comes in. Expect the unexpected, tomorrow's standards will appear here first. Please note that, to the best of our knowledge, all prices quoted are inclusive of VAT.



• *The new 4Mb Mitsubshi floppy drive for the IBM PS2 – the first of its kind.*

Drive with attitude

PRODUCT: 3.5-inch disk drive (internal) **NAME:** Mitsubishi MF356C

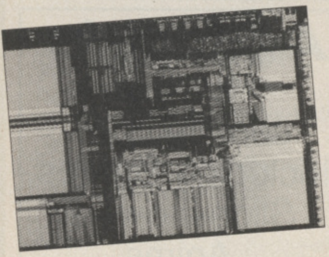
Compatible with IBM's PS/2 PC, this drive is a high density, 4Mb version. In effect this provides 2.88Mb formatted. The ferrite magnetic drive heads used in the drive are claimed by the company to offer a maximum data transfer speed of one Megabit per second, from the 80 cylinders and 160 tracks which are provided for storage. It measures 101.6mm (width) X 25.4mm (height) X 146mm (depth), and is downwardly compatible with standard 1 and 2Mb drives in both read and write modes.

A spokesman for Mitsubishi's public relations company in the UK, told *Express* that this drive was a "new industry standard".

Price:	£90
Availability:	Now
Target Users:	Original Equipment Manufacturers (OEMs), Value Added Retailers (VARs), End Users (by the end of August).
Contact:	0707-276100.
Perceived competition:	Both Sony and Citizen are working on similar products.

A chip off the new block

PRODUCT: **RISC chip**
NAME: **AM29030 and AM29035**



A strange choice for the news page you might think, but we know that many of our readers are interested in the very heart of their machines, and also in what could be the next big thing. These new Reduced Instruction Set Computer (RISC) chips offer the developer, and keen enthusiast if necessary, the chance to design state-of-the-art machines.

Even now Apple, NeXT and Acorn are working to make machines based on RISC architecture a standard worldwide.

Not only do the chips offer all the benefits of reduced instruction technology, they also come with a 4 to 8K on-board cache for instructions. Again, in the words of our resident technical expert: "This gives the cache some kicking space!"

Price:	16MHz = £52. 25MHz = £84. 33MHz = £105.
Availability:	The chips will begin shipping in bulk from September
Target users:	Developers and hardware manufacturers – with specific attention being given to imaging controller devices (such as those used in the NeXt machines) and bitstream manipulators
Contact:	0483 755030
Perceived competition:	None

A star is born

PRODUCT: **Printer**
NAME: **Spectrastar**

This colour film and wax transfer printer makes use of clay paper to produce high quality full colour pages. It makes use of a RISC processor, and has full Postscript compatibility.

The three colour ribbon which you will require for the best output results costs £120, and will provide up to 340 pages. Add-ons planned for the printer include a 6Mb RAM upgrade which will take the machine to a substantial 32Mb.

An internal hard drive, and 35mm camera attachment are also promised in the near future.

Price:	£6,900.
Availability:	General Parametrics and other reputable printer dealers.
Target users:	Desktop publishing pre-press. High quality presentations.
Contact:	081-897 3646
Perceived competition:	The nearest rival is Techtronics. Although, according to the manufacturers of the Spectrastar, the competition does not match up in terms of speed and data formats.

Space Age

PRODUCT: **Local Area Network (LAN) outstation**
NAME: **Space Station**

While this product is pitched as a VGA slave terminal for a LAN system, according to *Express*' technical editor Keith Pomfret, it has everything needed to make it a standalone 286/386SX PC. It looks exactly like a standard PC 102 key keyboard with no system box. What makes it different is the fact that the disk drive and expansion ports are mounted on it.

The standard unit comes with 1Mb upgradable to 4Mb. It comes with an external disk drive port, two serial (9-way D-type) ports, 1 parallel (25-way D-type), and a half sized 16-bit slot. Not only is the user unencumbered by a large footprint system case, the Space Station is also said to be exceptionally quiet. External floppy drives are already on-line, and a hard disk is in the pipeline.

Price:	£593 for 286 without floppy drive (£684 with). £1,071 for 386SX (£1,163 with floppy drive).
Availability:	Now available 'off the shelf'. Prior to this it was on test with both Ethernet and Arcnet systems.
Target users:	Small network users, corporate clients. This a recommendation from the company itself. Read *Express* issue 139 (on the shelves on 6 July) for a full review.
Contact:	Plus 5 Peripherals on 0483 755030.
Perceived competition:	Small footprint PC workstations.

Ion Age

PRODUCT: **PC expansion board for use with Canon Ion still video camera.**
NAME: **Ion PC Kit**

This package groups the much vaunted Canon Ion still video camera with a three quarter sized 16-bit board and all the necessary software required to process the photographs using your PC. To use the card, you will require a 286 PC or upwards, with 640K RAM, running DOS 3 or above. The kit allows you to take high quality photographs and develop them almost instantly, and convert the images into standard graphics formats such as TIFF and PIX. Once stored on a floppy or hard disk, the graphics can then be imported into desktop publishing applications.

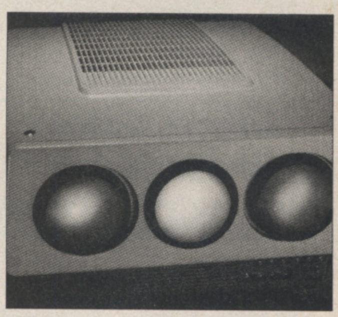
Peripherals planned for this product include a set of tele-converter lenses, a film adaptor, and major software releases which we believe will include compatible products from Aldus and Precision Software.

According to a spokesman for Canon, the PC Ion Kit offers a new way into the graphics workplace because: "Everyone can get text into documents. Now everyone can do the same, as easily, with pictures".

Price:	£1,169
Availability:	Estimated at the beginning of June, from Canon directly or from specialist PC retailers.
Target users:	Desktop publishing, image processing. In the long term, graphics libraries which will place PC compatible images in the realms of the public.
Contact:	081-723 3173
Perceived competition:	There is none, to the best of our knowledge.

The bigger they come

PRODUCT: **15-55 KHz data projector**
NAME: **NEC GP3000**



A massive projector for use in meeting rooms, the GP3000 provides a clear RGB image of 300" high by 60" wide. It offers both EGA and VGA compatibility, with interfacing achieved via five, 9-way, D-type inputs. Both S-VHS and PAL standards are catered for, which means that the user is not limited to using the device with a computer. Ideally, a multimedia set-up could be achieved with this technology.

Price:	£10,875
Availability:	Now
Target users:	Seminar and exhibitions managers.
Contact:	Anna Valley Displays: 0264 356581.
Perceived competition:	Barco is also producing projectors on this scale. However, according to Anna Valley: "Barco isn't a complete solution".

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856	XENON 3 ETC
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EXPRESS MAIL

Write and tell Haydn Fitz-Williams what you think! Reach him at: *Express Mail*, 30 Monmouth Street, Bath BA1 2BW. Sorry, no personal replies, even with an SAE and remember, only SOME letters win a fiver!

✉ Errr..sorry?

I JUST thought I'd write and tell you how much I've enjoyed the C64 column over the past few weeks - it really has been splendid! Please give my thanks to the person responsible for such an informative interesting and entertaining column.

Errr...Andrew Roberts, Merseyside

THANKS ERRR... Doubtless we'll be receiving similar communiqués from Jason Holborn, Ian Wrigley, Andy Hutchinson, Rod Lawton, Robin Alway, Ken Coumarin and, of course, Paul Rigby once the PC column makes its long-awaited reappearance.

☎ Post-piracy

I KNOW that £20-30 is a lot to throw at a new game, especially if you ain't too certain of the quality of what you're getting. But is pirating the stuff REALLY worthwhile? Presumably you people have acquired a fair amount of programming experience, plus a bit of business acumen through successfully flogging the fruit of your labours.

Are you really utilising these skill to your advantage? I suspect not. Sure, it's fun, but is it a profitable exercise? Maybe now, but will it be any good when you get out into the big, bad and prohibitively expensive Real World, with all its hassles and obligations?

I used to crack software myself, back in the days when all the games were on tape and I wanted to get them onto disk. I learned a lot about assembly language and how my machine worked from looking inside other people's code. But now, through doing a Degree course in Computer Science, I've graduated (sorry 'bout that pun) to bigger and better things. I've learnt about REAL programming, and about REAL computers, and with luck I'll get meself a Degree and go find me a REAL job. Believe me, some of you may think that breaking through a sophisticated game protection system on your home computer is a major achievement, but compared to designing, implementing, testing(!) and maintaining a BIG application running on a BIG machine, and doing so as part of a team, it's pretty miniscule.

I suggest you invest your effort into putting your skills to a more profitable use. Piracy doesn't help anyone in the long run, especially the actual pirate.

Alan Ralph, Watford, Herts

COULDN'T AGREE more myself. But while one day the pirates may grow up and get to grips with the real world, there'll be others waiting to replace them. I'm increasingly beginning to think that the only way to stop piracy is to stop releasing games on floppy disks. Methinks that economics will dictate CD format only games releases within five years. 'If you can't stop the prying fingers, lock the till'. But the next letter would seem to suggest another problem.

✉ The real world

WHERE DOES the majority of pre-release software come from?

A lot of games come from developers. *Rainbow Islands* was given to us a whole year before its release, but most come from any of three places.

1) Duplicators - duplicating can take weeks. We have contacts working in such places who give us a copy as soon as they come in. This gives us the game up to 3 months before release.

2) Distributors - as above, but the people we have work in these places get us anything up to two weeks before release.

3) Shops - Slightly slower here with a few exceptions explained below. Different countries have different release schedules. We get games from shops in America, Australia, France, Italy – all over the world. France is a good place for shop releases, especially Paris.

For an industry which runs solely on the exploitation of gullible young programmers' talent, the only people truly hit by piracy are the grey-suited money men who run these companies.

Good games always sell and make programmers money only if they are on a royalty deal but 90 per cent of titles are purely and simply bad conversions from arcade machines, where the sound and graphics are just copies and ported and then glued together with awful quick coding. The only cost for this sort of production is the licence fee and the serial lead to port the code from the ST to the Amiga.

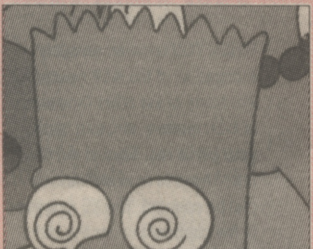
I hope this isn't too bleak for you 'cos this is the way it is and the way it will stay. No protection can't be cracked.

One of Many, Leicester

WELL IT seems I'm wrong already about uncopyable CD being the solution. If two of the main sources of pirated games are developers and duplicators, which I can well believe they are, it would appear any master code will be distributed irrespective of its final format. Also it looks like we're dealing much more with organised crime here rather than just some schoolboy cracking and swapping.

Reading between the lines, I reckon there's under the counter payments changing hands – programmers taking the profit directly from pirates and cutting out their publishers who will have already paid them an advance and some form of monthly salary. Not a lot more one can say really is there?

✉ HOW TO GET RICH BEYOND YOUR WILDEST DREAMS...



• This overhyped little yellow jerk could make you one million pounds very easily. All you need is one Woolworth's shop, £1,999,000 in spare cash and a helluva lot of sticky tape.

1 I've actually developed one of those 'get rich quick with your computer' jobbies that really does work!

All you have to do is to go down to your local Woollies and buy the Bart Rap single for £1.99. You then stick the cover over your monitor with sellotape and play the record, thus saving yourself at least £1.01 on buying the three-disk public domain sampled version.

If you do this 1,000,000 times you will make the amazing sum of £1,010,000 – enough to put every other scam to shame and make you very rich indeed.

Ivor Bigwun, Bristol

2 Here's a great idea for turning all the time you spend in front of a monitor into a foolproof way of becoming an overnight multi-millionaire. All you do is coat your disks with sodium so they'll spontaneously combust when in contact with the drive's read'/write heads and destroy the contents of your house. Then you sue the disk manufacturers pleading loss of property, health and sanity. Simple eh?

John Symes, Victoria Hospital Burns Unit, Worksop, Notts

ERRR...YES. Do any other readers have simple, yet wonderful loot attraction utilities to offer?

A Poser

SOMETHING to investigate ?
1) NCE 130, 2 May 1991, page 55, column 2, paragraph 2.
"Then we chanced on a stroke of luck. The Saab driven by John Gold turned out to be registered to an Elizabeth Grant-Muller, resident in Queens Road."
2) *Computer Weekly*, 2 May 1991, page 6.
"Police 'guilty of systems abuse'. Police officers are still abusing the Police National Computer.. holds confidential information .. registration data on every motorist." Discuss.

Gavin Syme, Edinburgh, Scotland

Oh no!

"*NEW COMPUTER EXPRESS STAFF IN SHOCK POLICE BRIBERY CASE!*"
Read all about it in this week's *Sunday Sport*!

Steve Browne, Kingston, Surrey

A GOOD point on which to start a debate, but *Express* didn't use 'inside sources' to ascertain the registration information in question. The real data is public domain and can be gleaned quite legitimately – with a little ingenuity. I don't want to print the details though – we'd start getting complaints from private detective agencies left, right and centre.

Big piles

I WOULD first like to say that *NCE* is very good value for money and is very informative. I don't know if other readers experience this, but I find it difficult to throw the mag away when I have read it, so I have a pile about two feet high !

James Smith, Stockport, Cheshire

WELL...just how big are other readers' piles? Send in photographs and we'll print the largest (**Are you sure? - Ed)**

Shuttle shock

IN ISSUE 130 I was outraged by an article for Virgin's shuttle simulator or rather the photo and the caption for it. It's disgusting that your magazine should treat such a disaster so lightly after taking such a moral stance on pirating software to totally ruin what little (I can see we're heading for one of the longest sentences ever to grace these pages here - H F-W) **credibility you had by making fun of the shuttle disaster. I, for one, am absolutely disgusted with NCE**

Ian Hurst, Wigan, Lancs

On-line mail

Own a modem? Then squirt us a letter. *Express* has its own conference on CIX. Why not give this on-line service a ring on 081-390 1244 and talk to us direct! You can also leave E-mail for us on Prestel and Micronet - get in touch on 011112623, or on Telecom Gold

OK, OK. I agree the caption was in bad taste. I suppose I also went over the top last week by printing all those crap jokes about the shuttle disaster. But then some people find black humour funny. Mind you, others would say it's merely the pitiful response of a sensitive mind to horrors too massive for it to fully comprehend. Take for example,...err.. no you better not.

Sam update

I'VE HAD a talk on the phone to Alan Miles about what you said last issue. He says that not only is what you said complete rubbish - you've had a SAM for ages - but also when SAM computers were canvassing you a couple of weeks ago (and proving that the MIDI problems were non-existent by demonstrating their sequencing software) and were asking you to write a column on the SAM in preference to them continuing with the SAM hotline, *NCE* actually asked them if they could name a reviewer - and you were (no -this is definitely the longest sentence ever to grace these pages -H F-W) **saying that they were forcing you to use their people to review the Coupé in the first place!**

Simon Cooke, Sale, Cheshire

BILGE. Firstly, we were given a SAM for review ages after the original launch and when it arrived it didn't work. Secondly, Alan Miles is the one who's talking rubbish. Thirdly, the editor asked Alan to suggest a columnist from the various user groups and fanzine circles he knew of and fourthly, *Express* decided not to run a column because it wouldn't generate enough interest. Think about it – I just can't see why they should want to pass over a hotline which they claim brings in 1,000 calls each week at a rate of 33p and 44p a minute.Can you?

PC Plodding

FURTHER to your request for multiple sightings of PC's on television, I feel sure I must win loadsa dosh as I have spotted literally hundreds of PC's during the course of the last month. The TV programs were *Inspector Morse, Taggart, Prime Suspect, The Bill, The Chief, 10 O'Clock News, 9 O'Clock News, 6 O' Clock News.* As well as PC's I spotted Sergeants, Inspectors and (I think we get the picture – H F-W)

D.Macwibblewobble, Sutton, Surrey

A droid writes

IF HUMAN intelligence is so superior then how come you manged to spell my county wrong? Anyway, my digital image scanning is obviously superior to what passes for sapien observational abilities because I seem to be the only being to have noticed my soul bro' DARYL on the box over Easter, playing not one, but two games simultaneously on an Atari 8-bit (*Firefleet* and *Missile Command*). It's nice to know that at least somebody has taste

The Android, Rhyl, Clwyd

WELL SPOTTED Me ole' droidy chummy, but answer me this - how can anyone, irrespective of their degree of digital consciousness, play one game simultaneously? Don't tell me - he has the same game playing on two or more machines right?

Betamax 2?

WHAT'S ALL this fuss being made about CDTV? Everyone who is anyone realises that as soon as Sony gets its marketing people into gear and its CD-I product fully developed, Commodore's attempt at multimedia will vanish into the realms of Betamax and Video2000

Martin Firbanks, Kircaldy, Scotland

OK Martin but just remember Betamax was a Sony format won't you?

Just send cash

WHEN YOU unceremoniously dumped all of the 8-bit columns, I like many of the other thousands of 8-bit readers, stopped taking your purile rag. Several months later I have to hold my hand up and be counted. The XE now lives in the cupboard under the stairs with the tent and kayak that we never use and an Amiga takes pride of place on the desk.

Your abrupt 8-bit halt left me first angry and then determined to do something about it. Time doesn't stand still so I'm now a 16 (or was that 32) bitter. Without *Express*'s help I would still be in the dark ages

Jack Sproston, Winsford Cheshire

WRITE A LETTER AND WIN A GAME SHOCK

WE'RE NOW in our fourth week of giving away free full price games to the best letters we receive and our first winners should be receiving their prizes right now. This week there's another five top titles to be won, so you should actually get round to specifying the game you'd like to win should you write the greatest letter ever received in the history of *Express* (this week).

So here's the five top digital delights for this week :

- **AMIGA - EMPIRE SOFTWARE'S incredible space trading shoot-em-up *Megatraveller 1***
- **ATARI ST - VIRGIN'S riotous *VIZ* -**
- **COMMODORE 64 - IMAGE WORK'S *Passing Shot***
- **AMSTRAD CPC - ZEPPELIN'S *Jocky Wilson's compendium Darts***
- **PC - Infogrames' *Welltris***

So get writing on anything under the sun and win yourself a free game!

THANKS Jack, should you, or any other reader, wish to remunerate any of the *Express* team members for their enlightened advice, just a cheque to *NCE* Editorial, Commodore UK, Maidenhead, Berks.

DIY VR sims

IF EVERYONE who read *NCE* took notice of what you say, we'd all be using Workstations, Virtual Reality Simulators and 3D Laser Holography for entertainment.

Get a life. People don't have the cash or the desire for these Ferraris of the digital world. Stay with bread and butter subjects. We don't want expensive toys to look at. We want realistic things to buy and make.

Stuart Kennett, Halifax, Yorks

OK, we'll do a Circuit City special on DIY virtual technology in the near future just for you...

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AMOS COMPILER IMMINENT

Fans of Mandarin's wondrous games creation package AMOS will be pleased to learn that the compiler will be with us in a matter of days.

To be published under the new Europress Software banner (phone 0625 878888), the compiler promises to turbo charge your AMOS programs, typically doubling their speed. Speed isn't the only advantage, however. Because your AMOS programs will be turned into super-fast machine code, there's no need for the old and trusty RAMOS runtime system, therefore allowing you to produce programs that are truly stand-alone.

At the recent European Computer Trade Show, Europress was also showing off the first real extension for the AMOS language, in the shape of the much talked about AMOS 3-D. It's been previewed more times than the CDTV (which is really going some), but it seems that we may well finally get a chance to add true 3-D graphics to our AMOS programs.

The package (which comes complete with a dedicated 3-D object editor) claims to allow anyone to produce games like *StarGlider* in AMOS. Personally, I'll believe it when I see it.

JAGGIE-FREE FONTS

Zen Computer Services has launched a new package which is sure to be of special interest to anyone involved in desktop video on the Amiga. Called *Antia* (great name lads), it's a powerful font enhancement utility that smooths out the jaggies on standard Amiga bitmapped fonts, therefore making it ideal for producing professional looking video titles.

Just like the font scaler utility distributed with many Gold Disk products, *Antia* can produce up to nine different scaled down versions of any standard Amiga font, antialised using four brightness levels. This also automatically converts the fonts to colorfont format, so you'll need a colorfont-compatible package like EA's *DeluxePaint 3* if you wish to use them.

The package allows you to produce point sizes up to an impressive 300, although this kind of operation will require large amounts of memory and processing time. Zen recommends a processor accelerator and at least 1Mb of RAM, though these are not a necessity. *Antia* is available now from Zen for just £40. You can reach the company on 061 793 1931.

SUPER ECS SOON

If you thought the Enhanced Chip Set was the bees knees, then you're in for a shock – Commodore is already working on a vastly enhanced chip set that will push the Amiga's capabilities still further. OK, most of us still don't have the current ECS (come on Commodore, get your act together), but that's no reason for Commodore to rest on its laurels. No siree, Commodore's research and development people really seem to be getting down to some serious work.

During an interview published in a well known UK monthly Amiga magazine, Commodore's head-honcho, Irving Gould, revealed that a new chip set is in the works. When questioned about its capabilities, he went on to add that the new chips would add 'more icing on the cake', including such things as extra colours (let's face it, the Amiga needs them) and even more chip RAM (would 4Mb be too much to ask?).

Exact specification-type details were rather lacking (Gould himself admits that he is no techie), but he assured us that Commodore is committed to 'staying with the state of the art'.

BOOKS FOR BOFFINS

If you're after a good read that will teach you a thing or two about your Amiga, then look no further than a couple of home-grown books from prolific book publisher, Bruce Smith Books (phone 0727 41243).

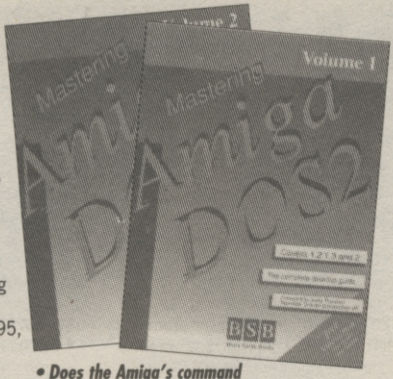
Bruce has pulled together some of the most experienced and certainly some of the most knowledgeable Amiga journalists around, including such well known names as Mark Smiddy, Phil 'Snouty' South and Paul Andreas Overaa. Those of you who study the monthlies will have no doubt seen work from these writers; they contribute on a regular basis to such publications as *Amiga Format*, *Amiga Shopper* and *Amiga User International*.

GAMES FOR JUST £3!

If the recession is finally starting to bite, then take comfort in the news that Prism Leisure has launched a new range of 16-bit budget software. OK, nothing special so far, but the good news is the price of the games– just £2.99. Just think, you can now buy commercial games software for the same price as PD software!

As you'd expect, none of games offer particularly ground breaking material, but there are a few bargains to be had. Initially the range consists of 16 titles, all of which were previously sold for considerably more than their new asking price. These include such classics as Kevin Toms' (what ever happened to him?) *Football Manager*, Anco's *Mouse Trap* (a great little platform game), *Frost Byte* (yet another platform game in the *Manic Miner* mould), *Karting Grand Prix* (a very cheap and cheerful *SuperSprint* clone), *Las Vegas* (a fruit machine game) and *Plutos* (a totally naff vertically scrolling shoot-'em up).

Hopefully more companies will follow Prism's lead, with more (and hopefully better) software being made available at what is undoubtedly a remarkable price. With leisure software having such a short shelf life, it seems only logical that software companies can maximise the sales potential of a particular product by re-releasing it into the budget sector. It is tempting for these companies to sell budget titles at the current £10 price level, but (while being cheap for 16-bit software) this is still a far from ideal price.



• Does the Amiga's command line interface confuse you? If so, then the Mastering AmigaDOS series of books is for you.

Many of Bruce's Amiga specific publications are very much still 'in the pipeline', but two have already been released. Both written by Mark Smiddy, they are *Mastering AmigaDOS* volumes one and two. Volume one costs £21.95, but you can also obtain a free diskette which is packed full of useful utilities and source code for many of the examples given in the book (saves the old typing fingers, don't you know). The second volume costs just £17.95, but it's just as thick as the first (over 300 pages!).

Volume one starts off with an introduction to AmigaDOS, looking at such subjects as how directories are structured, how to move around a disk and a basic introduction to the fine art of working with AmigaDOS commands. The DIR command gets a damned good going over, with successive commands receiving pretty much the same treatment. Then it's on to such subjects as the AmigaDOS Shell, wildcards, file protection, environment variables and a lot more besides.

Volume two (which was actually written before volume one) is a complete reference to the AmigaDOS command set that covers both 1.3 and 2.0 of the Amiga's operating system. Everything is laid out in a clear, no-nonsense fashion that will allow you to find out what you need to know in a matter of seconds.

I've seen a fair number of AmigaDOS references guides in my time (indeed, I've got a shelf full of the damned things) but none go as far as these two books. A lot of it may seem rather too techie at first, but as your skills progress, these books will continue to be a valued source of reference. Whether you're just starting out with AmigaDOS, or you're a seasoned CLIer, the *Mastering AmigaDOS* series is a recommended purchase.

Jason Holborn

ST

MIDI MUSIC SHOW

Anyone who took a stroll around the second MIDI Music show, would be left in little doubt of the ST's dominance of the MIDI market. On practically every stand at the show an ST could be seen controlling synthesisers, hardware controllers, drum machines and sequencers. This dominance is all the more impressive when you realise that only two other machines were on show on the stands: a lack lustre PC and a lonely Amiga games machine.

There was a gorgeous array of new software and hardware launched at the show. In fact, nearly all the stands had some new package on show for the first time. *Express*'s sister magazine *ST FORMAT* was sharing a stand with Atari itself. On the stand was the first public showing of the brand new Mega STE. This was running version three of *C-Lab Notator*, which was in turn, controlling a Yamaha SY-77 synthesiser. What's more, the Mega STE was multi-tasking via C-Lab's Softlink package. This was a timely reminder to the few Amiga owners who showed up, that the ST can multi-task just as well as any other 16-bit machine.

The boys on the Audio Visual Research stand were demonstrating what could well be one of the best pieces of hardware of the year. Their 16 bit sampler can operate at frequencies between 16KHz and 44.1KHz, the latter being CD quality sound. What's more the software has been completely re-written to include tape travel type icons and a plethora of keyboard shortcuts. The hardware's been modified so that it now operates at 64 times over-sampling on input and four times on output. At £300 this is a professional sampler at a ridiculously low price. AVR is on 0582 457348.

The School of Audio Engineering was touting its ST-based MIDI courses. This company, which has been around for 14 years, specialises in guiding students through the murky waters of MIDI, via hands-on experience. There are three MIDI courses: basic, intermediate and advanced The former deals with such subjects as "principles of MIDI" while the advanced course covers things like "interfacing pre-MIDI equipment". Prices start at £75. Telephone 071 609 2653.

Intersound is an Italian company which has just released a package called *Sample Tools*. This program enables you to keep a database of some 18,000 samples. Snippets of the sample itself can be played back through a monitor and the whole wave can be edited in-memory. The program works with S-1000, W-30, S-550, S-330 and S-50 samplers, making it extremely flexible. Intersound is in Italy on 0039 01/1-884646.

GAJITS UPDATE

Gajits, producer of the *Sequencer One* software, announced an update of the popular budget sequencing program. Called (wait for it, wait for it) *Sequencer Two*, Gajits promises that it will include conventional notation editing, event list editing, simultaneous multi-track recording, sys ex bulk handling and better note editing facilities. The release

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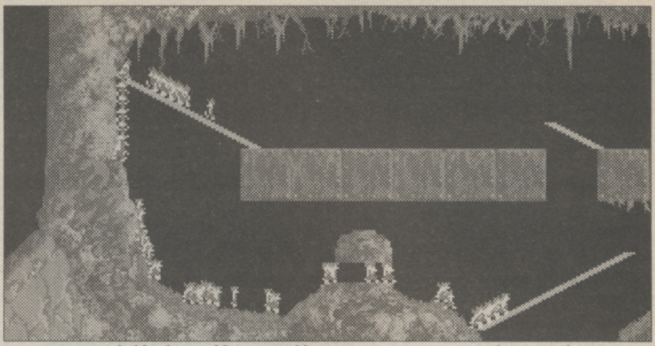


• *Lemmings, probably the world's most addictive computer game, marches onto the ST.*

date is pencilled in for the autumn.

The team also launched *The Hit Kit*, a new music composition program which helps a novice to create drums, bass, arpeggio patterns or even complete pieces of music. Gajits are on 061 236 2515.

Plasmec has single handedly revolutionised hard disk recording by releasing a very budget version of this popular record/playback medium. The Adas system works with any size ST and can be used in conjunction with C-Lab's or Steinberg's sequencing software. The basic package costs £839 for the hardware and controlling software, while the Dat I/O board costs £359. DAC, the British distributors of the package, is on 0784 462175.

Digital Muse was demonstrating *Virtuoso* and *Prodigy* its two revised modular sequencing programs. *Virtuoso*, the more expensive package, is a multi-tasking sequencer which can operate up to 99 tracks. Muse is on 071 586 3445.

DON'T BE A LEMMING

After a slight wait for the ST version of this game (ironic smile) Psygnosis has released *Lemmings* to an eager ST community. If you haven't heard about this highly original game, then a brief synopsis might be in order.

The idea of the game is to guide a hundred or so lemmings safely to a gateway. On the way there are a number of hazard, such as big drops, flames, water and spikes. The lemmings aren't directly under your control. However you can tell individual rodents to perform tasks, such as re-directing the traffic, exploding (yes really), digging and parachuting. Thus you can chivy your lemming army to the gateway at the end of the level.

Lemmings plays like a dream. It really is a frantic game, which has deprived me of more than a few hours of precious sleep. You see a side-on view of a landscape which can be scrolled left and right via the mouse, then little furry chaps start dropping from the skies and you're left frantically sticking traffic warden lemmings on patrol. On occasion the screens look so simple that you think you'll get it right first time, but trying to get these blimmin' lemmings to do anything right is like trying to direct the traffic around the Arc de Triomphe.

Completing a tricky level of *Lemmings* is comparable to passing your driving text. The worst (that is if your a busy person) aspect of the game is its addictive quality. This is a side of games design which is all to often left to pot-luck. If you're taking some exams in the near future, don't buy this game.

DON'T BE A LLAMA

A little foot-note. If you turn to the Public Domain section of this great organ, you'll discover a review of a shareware game called *Llamatron* by Jeff Minter. Having received this game myself I can only say, go out and buy it yesterday. When programmers like Jeff get so discouraged by the whole computer games industry that they have to resort to shareware, you know there's a problem.

Apart from the game's massively addictive qualities, it's a gem. Smooth, rapid graphics, crisp samples and gnarly humour make this an all-time classic.

Andy Hutchinson

C64

ASHES TO ASHES?

Recently, it seems that a week cannot pass without a 'controversy' in the world of the C64. This week, it is the rumours of a price cut for the C64GS, which, if true, could only quicken the demise of the 64.

Looking at the situation realistically, could Commodore have dominated the console market with the GS? Technically it has the edge over the Sega, but having been launched on the back of another machine's successes it pails in comparison. Don't rush out and sell your GS right away – the price cut will undoubtedly increase the user base (and popularity) tremendously, but if other consoles go from strength to strength, the GS only has a couple of years left to live. If and when it does disappear, it will not have been in vain – it stirred up interest in cartridges, which will no doubt prolong the life of the 64 (even if they are too expensive by half). It all appears to be doom and gloom at the moment, but I look at the situation another way – when the Spectrum market disappears, THAT'S the time to start worrying.

A GOOD WHINGE

I received an interesting and lengthy letter from Paul Copley this week – thanks, Paul! He had some very strong points to make about Commodore, the demise of the 64, and the ubiquitous

GS. His letter dwells on the subject of the cartridge/cassette/disk struggle, and highlights that the price of disk drives should be brought down in order to inject some life into the machine (and indeed to provide the cartridges with some sort of 'competition'). He also states that if Commodore continues to attract programmers from the C64 to the Amiga, there will be few reputable programmers left and subsequently the quality of software will deteriorate rapidly. Eventually, he adds, the C64 market will consist solely of budget games and will ultimately 'stagnate'.

Valid points, Paul, but there are hundreds of competent programmers/artists/musicians out there just waiting for their big break. I wouldn't worry about software standards just yet.

Finally, he gave a few suggestions on how to improve the column – rest assured, I've taken some of your thoughts on board. If you have something to get off your chest, or if you have any other ideas, criticisms and the like, jot them down and send them to; Andrew Roberts, *New Computer Express*, 30 Monmouth Street, Bath, Avon, BA1 2BW.

A TO Z PART 2

Alright, you've been desperately counting the days for this week's column so here it is... the final part of the A-TO-Z of essential games!

N – *Nebulus* (Hewson) Probably the most original game concept ever, this cutesey platform game cum shoot-'em-up provides lasting entertainment. Frustrating, but fun.

O – *Octpolis* (English) This was labelled a *Sanxion* clone when first released, but the similarities are only minor. The game also boasts a challenging (and technically excellent) vertical stage, adding to the immense playability.

P – *Parallax* (Ocean) Sensible Software always delivers the goods; fast and furious action across five superb parallax backdrops. There are also some neat puzzles in there, but what really shines is the epic 15 minute soundtrack – awesome!

Q – *Quedex* (Thalamus) Possibly the only decent game beginning with a 'Q', this 10 stage puzzle game is a tough test of skill and co-ordination. Silky graphics and bouncy music accompany the taxing gameplay.

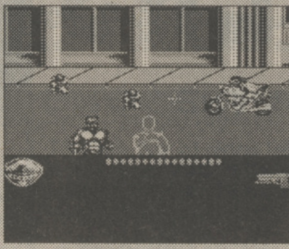
R – *Retrograde* (Thalamus) The largest collection of superweapons ever seen! The seven levels combine frantic horizontal stages with tricky vertical ducts, each one followed by a gargantuan mothership. Original graphics... funky music... a superb shoot-'em-up.

S – *Slap Fight* (Imagine) Quite unusual; the graphics are adequate, the sound annoying, but the game itself is totally compelling! Fans of the arcade original will love this conversion. It's difficult, even unfair in places, but keeps you hooked for weeks.

T – *Tetris* (Mirrorsoft) Other clones of this utterly splendid concept (*Welltris*, etc) come nowhere near to matching the genius of this game. Stunningly simple gameplay is the key to its lasting interest.

U – *Up 'n Down* (US Gold) One of my all time favourites... seriously! It is a truly 'lovely' game, with quaint graphics and a hilarious tune. Difficult to track down, but if you've got it – hang on to it. A classic!

NAME THAT TUNE



Here's a little poser for you. What's the connection between *Robocop* and a washing machine? Putting aside any lewd comments about mating habits, the actual answer is that the music which accompanies the latest Ariston washing machine advert is the music from the title sequence of the *Robocop* game. Don't ask me why. Just send in your suggestions on the back of a used £20 note.

V – *Vendetta* (System 3) An interesting *Ninja* variant boasting some wonderful Dokk graphics. The racing stages serve to enhance your enjoyment, while the puzzles are well paced. Oh, and who can forget the incredible intro? I nearly did!

W – *Wizball* (Ocean) This game seems to defy definition – is it a shoot-'em-up, or a puzzle game? Who cares? It is original and fun. A whole host of player combinations, original (and colourful) graphics, plus some beautiful Galway tunes. They don't make 'em like they used to... pity.

X – *Xevious* (US Gold) Underneath the appalling aesthetics hides a really playable game (honestly). It is faithful to the arcade original right down to the last blade of grass, but lets itself down as a full-price game.

Y – *Yei Ar Kung-Fu* (Imagine) The first game from the reputable Collier/Wahid/Galway trio, the game is frustrating beyond belief! If you persevere, there is a thoroughly entertaining game in there somewhere. Graphics are accurate (and move FAST), and the Jarre title screen tune is brilliant.

Z – *Zak McKraken* (US Gold/Lucasfilm) I'm lost for words. The amount of detail in this game is incredible. A superb, if bizarre storyline, detailed graphics, instant playability and hysterically funny. Disk only, but worth it just to see the exploits of those stupid Alien Mindbenders!

So there you have it – 26 of the best C64 games ever. Of course, it's all a matter of opinion and personal taste, but I have tried to include a vast assortment of software to please all of you. If you're not happy with my choices, drop me a line and say so.

COMING SOON

Finally this week, a few things to look out for over the coming weeks... *Navy Seals* has finally surfaced, having been held back (supposedly) as a result of the Gulf Conflict. It's in the shops now and what a stonker of a game it is.

The Famous Five from Enigma Variations is a *very* poor book-to-game conversion, so steer well clear.

From Demonware comes *GEM'X*, a fast and fun arcade/puzzle game, featuring some scantily clad girlies (fnarr, fnarr!).

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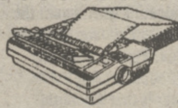

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Hero Quest is one of this year's better RPGs. It doesn't follow the plot of the original board game exactly, making it a refreshing challenge for even the most ardent role player.

Last but not least is *Predator 2*, an out and out blast in the mutated tradition of *Operation Wolf* – loadsaviolence. Fans of the film will simply adore it, and rightly so, it's great entertainment.

Andrew Roberts

CPC

AMSTRAD CHOPS SENIOR POSTS

The big news this week is Amstrad's announcement that 37 of its staff are to be made redundant. The majority of these, 31, will take effect at the company's Brentwood headquarters, while the rest of the jobs will go at various other sites around the country.

Big names on the way out include the managing director of the Amstrad UK division, Barry Young, and Peter Roback, Amstrad's software and peripherals product manager. Roback was the leading light behind the GX4000 and Plus machines, although his departure is not being attributed to the poor performance of these machines in the shops over Christmas.

Amstrad is blaming the general economic recession for the redundancies, pointing out that many other companies have had to make similar cuts. Amstrad's main board, headed by Alan Sugar himself, will now take over UK operations.

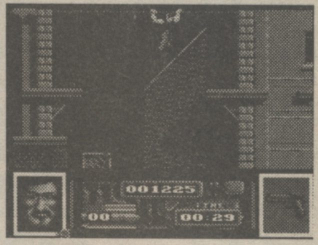
Meanwhile, there's some speculation at the moment about possible new deals involving the GX4000 and its software. Keep watching this space!

NAVY SEALS

A game about terrorism in the Middle East probably isn't in the best possible taste, but since when have software publishers been bothered with taste? Besides, Ocean's latest cartridge game is a licence of a film. What, you've never heard of *Navy Seals* the film? I'm not surprised. It went down like a lead balloon in the States, and there are apparently no plans to put in on general release over here.

The film followed the exploits of a band of American special forces types, a bit like the SAS. SEAL actually stands for Sea, Air and Land, and is nothing to do with those black rubbery things they have zoos.

There are six levels to the game, each taking place at a different location.



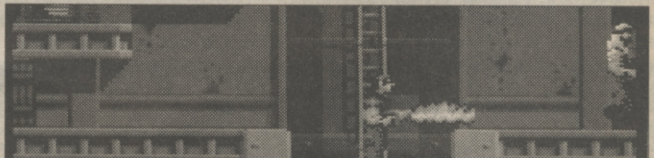
• Athletic bunch, aren't they? Don't fall off, or you'll be going home in a bin-liner...

It's pretty standard platform/shooting action stuff, but the console hardware has been used to really good effect to provide excellent, atmospheric backgrounds, smooth scrolling and interesting detail. Your main job throughout is to explore each level and plant bombs on top of crates packed with stolen military hardware. There's not much of an art to this – in fact, you simply have to walk past a crate to plant your explosives. Your main job is going to be timing leaps and dodging enemy fire. One good thing is that once you shoot one of the enemy, he doesn't reappear if you revisit that section later. Just as well, as the game is tough enough as it is.

What makes the game all the tougher is that you are up against a strict time limit. Even on level one it is extremely tight, so you're looking at a game that's going to last you a long, long time, just as long as you don't give up with frustration.

You control a five-man team as you embark on your quest to save the hostages (ah yes, we'd forgotten about those, hadn't we? Ahem...). These five men effectively make up your store of lives. When one pops his clogs the next takes over.

Your men are all very athletic, swinging like overdeveloped gibbons from platform to platform, and generally looking hard as nails, but it only takes one hit from an enemy bullet to kill



***• Navy Seals:** You can pick up extra weapons from crates lying around the levels. Here, you've found yourself a juicy little flamethrower...*

them. And falling too far from a platform curls up their (very tough) toes too.

That, basically, is about it. *Navy Seals* looks excellent, it plays well and it's presented beautifully. If only it wasn't so difficult! Either Ocean's play-testers are too good, or I'm getting old. (Don't answer that.)

TRAITOR!

This letter from Phil Morley of Peterborough is a bit outrageous, but I'll put it in anyway because there may be something in it for all you Amstrad owners out there…

"This is your last chance, lovely 6128 owners (one of whom I used to be). I have mountains of 6128-specific magazines chock full of gripping 6128-specific info piled under my bed awaiting the knacker's yard – *Waccis, Amstrad Computer Users, Amstrad Actions* (a veritable tome) and mucho books at knock-down prices.

"Their salvation will be anyone offering 50p or thereabouts a copy – buy in bulk, save money. The men in bright orange overalls will come to take 'em away soon, as the mice have no room for their wrestling matches under my bed.

"All jokes aside, I have an enormous database of 6128 subjects, so if any of your discerning readers has a specific query I can probably find a mag with an article covering it.

"I will send a list to anyone who phones me or writes to me. I now own a PC and can be found lurking in the pages of PC Plus."

Well there you go! Want any old mags? Looking for an article on some weird and wonderful Amstrad-related subject? You can reach Phil at: 11 Kingfisher Road, Wittlesey, Peterborough PE7 1YF, or call him on 0733 204534.

GARFIELD GETS A POKE

Well, he does in *Garfield's Big Fat Hairy Deal*, anyway. Garret Flynn from Milford supplies this tape cheat to stop the furry feline falling asleep:

```
1 'GARFIELD'S BIG FAT HAIRY
DEAL
2 'BY GARRET FLYNN 1.1.91
3 '(TAPE) STOPS HIM FALLING
ASLEEP
4 '
10 DATA 21,f4,21,11,f4,01
20 DATA 01,00,03,ed,b0,21
30 DATA 94,be,22,5f,02,c3
40 DATA f4,01,3e,c9,32,ac
50 DATA 1e,c3,f0,0a
60 MEMORY &1FFF:MODE 1
70 FOR addr=&BE80 TO &BE9B
80 READ byte$:POKE
addr,VAL("&"+byte$)
90 NEXT addr
100 LOAD"garfield",&21F4
110 CALL &BE80
```

Rod Lawton

SPECTRUM

PACHYDERM PACKAGE

CodeMasters can always be relied on for cute and sickeningly cuddly budget games featuring wacky characters we all grow to love (ahem) so it was no surprise to receive *CJ's Elephant Antics*, the company's latest bid for £2.99 fame and fortune.

CJ the elephant is a nicely drawn fellow who you have to guide back to his native Africa through the usual baddie-infested screens. Luckily anyone blocking your way can be dispatched with a well aimed peanut fired by CJ, although that still leaves a variety of hazards to threaten our long nosed mammal friend, including some rather nasty spikes.

For plot reasons I'd rather not have to explain, each level is set in a different country and the graphics, which employ nice splashes of colour throughout, reflect this. Also worthy of a mention is the two player mode; you each control a pachyderm and work in cooperation.

CJ's Elephant Antics has a compulsive 'just one more go' factor as you work out how to get by seemingly impossible obstacles. Basically it's cheap, cheerful fun and I reckon CJ the elephant should be the star of a fair few cheapos to come.

HELTER PASSWORDS

A few weeks back I raved on about Audiogenic's very cute and, more to point, very difficult *Helter Skelter* game. Luckily a kindly and talented Spec-chum has already managed to find the passwords for the game and sent them in for the benefit of rubbish games players everywhere.

Kes Bloor of Staffs tells me that the passwords for *Helter Skelter* are, in order: KICK, TOUR, DALI, TOAD, DRUM and JOKE.

SD FOR PLUS D

Fabulously rich types who own Plus D or Disciple disk systems for their Speccy should check out SD Software's catalogue. As well as Uni-DOS, the ROM replacement package I've told you about loads of times before, the company also has a veritable cornucopia of kit available on disk for Plus Ds.

First off there's *IBU*, a supposedly 'intelligent' disk copier for £4.90. Designed for use with GDOS, IBU main claim to cleverness is that it can manage incremental copying. This means that when backing up disks only files that have changed since the last back up are copied. This reduces the number of tiresome disk swaps needed.

SD also sells *File Convertor*, a specialist program that converts MDRV files into BASIC, CODE, OPENTYPE or DATA type ones. You can use it to convert Tasword MDRV and OCP assembler files. It costs £5.30.

Hackers' Workbench (£9.90) is a utility that allows you to examine, list, alter, move, print, clear, disassemble and generally mess about with 48k/128k snapshots. Sounds rather good and is apparently a boon for the experienced programmer.

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All these Plus D/Disciple utilities are available from SD Software, 70 Rainhall Road, Barnoldswick, Lancashire BB8 6AB. Members of INDUG can get sizeable wadges off if they quote their membership number and there are also some SAM specific things on offer. The usual SAE will get you more details.

MORE CHEAP DISKS

Another supplier of cheapish 3 inch disks has been located. Thanks to Bill Hayball of Kent for telling me about Once Bytten (Tel 0474 567964) which sells the required slabs of plastic at reasonable prices. You can get 10 3 inch disks from them for £7.50 or 50 for £32.50. Good luck with the word processing, Bill.

THE PRICE IS WRONG

I've just re-established contact with Mark Harris, formidable hacker and a faithful old regular to this column. He wants to moan about software retailers and since Ester Rantzen and Lyn Foulds-Wood weren't available he decided to write to me instead.

The problem started when he ventured into a well-known high street store to check out the Speccy stuff on offer: "I was shocked and bloody well disgusted I can tell you!" he says.

"They were trying to sell full price games which they've had for ages (one of them predated the Plus 2) for between £10.20 and £11.20. They even had the cheek to put another 5p on budget games. Now granted the VAT has gone up but I still don't think it's right to put it on old games, especially budget ones that have got the RRP printed on the cover."

"To me WH Smith's mode of business stinks of profiteering (ie legalised piracy)," he reckons. He goes on to praise Software Plus, an independent shop in Canterbury, for its low prices which are non VAT adjusted.

Although I don't think I'd go quite that far, Mark has a valid point. Maybe it's best to stick to smaller independent shops when buying software. Generally I have found that the service is better, the range is wider and, as Mark found, the prices are cheaper. Support your local independent computer shop!

MIG POKE

More opportunity for you to cheat this week with lots of pokes kindly provided by Alan Jones. He's come up with a routine for *MIG 29 Simulator* which you'll need to type in, save for posterity, RUN and then start your game tape from the beginning to get working. Thanks Alan.

```
10 REM BY ALAN JOHNS
20 REM MIG 29 SIM
30 CLEAR 65482: LET T=0: LET
W=0
40 FOR F=65483 TO 65513: READ
A: POKE F,A
50 LET T=T+W*A: LET W=W+1:
NEXT F
60 IF T58836 THEN PRINT FLASH
1; OVER 1;; INVERSE
1;"ERROR"; INVERSE 0; FLASH
0; OVER 0;" IN "; FLASH
1;"DATA": STOP
70 DATA 243,49,0,0,221,33,0
80 DATA 64,17,220,191,62,255
90 DATA 55,205,86,5,49,0,0
100 DATA 212,203,255,62,36
110 DATA
50,213,167,195,196,193
```

Robin Alway

ARCHIMEDES

MIG 29

Domark has released the Archimedes version of *Mig 29 Fulcrum*, its successful PC and 16-bit game. But any Arc gamer will feel a twinge of familiarity as the game unfolds. This is no straight conversion of the Amiga code: the Arc game is closer to being *Interdictor III* than you might think.

In form it's a standard flight simulator, giving either an easy-to-fly plane or a close simulation of the latest Soviet fighter, the eponymous Mig 29. Packaging is good, with a chunky manual that helps with software protection too; you have to type in a word picked at random to fire up the game. Having an unprotected disk is a boon, as you can put the lot on a hard disk if you want.

Once loaded, you can choose one of several missions; photograph a submarine, blow up an oil rig, escort a group of enemy fighters out of Soviet airspace and so on. But sitting on the runway is where the deja vu sets in. The game code is written by Simis, author of Clares' *Interdictor*, and *Mig 29* contains the same 'core' of routines.– the aircraft model and the display system – as its predecessors. There's new scenery, obviously, and new performance data for the plane.

The controls are complex, spread between mouse and keyboard, and given that the game is so much like *Interdictor*, a closer mapping between the two might have been a good idea. *Mig 29* follows the original Amiga control layout, which means there's nothing to do with the Select button on the mouse (the Amiga has a two-button mouse). It would have been better if you could use the mouse to control the engine revs, rather than using the '+' and '–' keys.

Although there's a points table for different pilots as they complete each mission, there's no way to save the game with a mission half finished. The cockpit display is more 'flashy' but less informative than *Interdictor*'s, but then again, it tells you all you need.

The two games are both based on the same simulator code, so there are only minor differences in crucial things like the amount of ground detail and the frame rate. The scenery is the same green carpet plus pyramidal hills.

So why is *Mig 29* a much better game than Clares' *Interdictor*? A complex question, but here are the answers. There is a particular excitement of 'flying' a real plane;

THANKS FOR THE MEMORIES

It's often said that the human memory can only bear seven things in mind at once. For A3000s and 410s, even that could be a gross over-estimate. Unless you do nothing other than play *Mad Professor Mariarti*, you need that extra memory. And now is definitely the time. Even Acorn itself has reduced its memory prices.

Upgrading an A3000 to 2Mb has never been cheaper: it should cost you less than £70 from any number of well-known suppliers. The eight chips for a 410 can be had for as little as £55, though your thumbs don't half hurt when you plug them in.

Interdictor's model is fictitious. The adversary aircraft in *MiG 29* are real too – the Harriers look remarkably like Harriers and take off vertically, Mirages fly very fast and low over the desert, and so on. The scenario is better: there's a variety of missions, which are given a little background and context in the manual, so you know why you're fighting off strange Chinese fighter planes over the Great Wall.

There's also a couple of new ingredients. The missile targeting system in *MiG 29* is more complex: you have to 'lock on' the air-to-air and air-to-surface missiles before firing. Enemy planes often get away, too. In *Interdictor*, when the chime for missile lock goes off, you know you're going to hit your target.

The enemy pilots in *MiG 29* are a lot more unpredictable than those in *Interdictor* who have very poor tactics; you can often predict exactly what they are going to do.

Interdictor only gives you 'out of the cockpit' views, but *MiG 29* adds a really spectacular 'chase plane' view and the view from the control tower. You can also sneak a peek at what your opponent can see, and get a 'Stormin' Norman' missile's eye view as it streaks towards its target.

Mig 29 shows just what *Interdictor 2* could and should have been. With a 'save' facility as well as the pilot's score table and a better control layout, it would have been near perfect. As it is, Domark still has a deserving winner on its hands. If you like flight sims at all, go out and buy *Mig 29*. It's almost worth the £40 you'll have to pay!

Domark is on 081-780 2224.

LASER PRINTER UPDATE

Calligraph and Computer Concepts both continue to upgrade the printer driver software for their respective standard resolution (300dpi) direct drive laser printers. Both the latest versions show minor speed improvements.

Computer Concept's Laser Direct remains faster overall, particularly with its 'quicktext' software option. It is slicker too, with printing 'in the background' so that you can get on with something else while your printer's still churning away.

Calligraph's machine has always lead on the 'natty features count', and one important new one is the quality of the grey scales. The current software gives you a choice between more greys (64 is normal), or better quality grey tones at the expense of fewer greys. Choose 16 greys – perfect for printing sprites – and the quality of the printing comes close to Computer Concepts' Laser Direct hi-res.

The original price difference, which had made Calligraph's machine such good value, has all but disappeared. Both cost close on £1,150 inclusive. My choice would still be the Computer Concepts version. But if you're a *First Word Plus* junkie, or if you have a network, it could be time to look at Calligraph's Arclaser. Its Epson emulation allows it to be used from BASIC or *First Word Plus*. Computer Concepts is adding a similar feature to its driver too, but Calligraph does have the lead. On a small network, the Arclaser can be shared by several Archimedes: although printing ties up the network completely for a few seconds, you don't need any extra software. Computer Concepts' network printing demands a copy of its PostScript clone ShowPage (around £200) on the Arc with the printer.

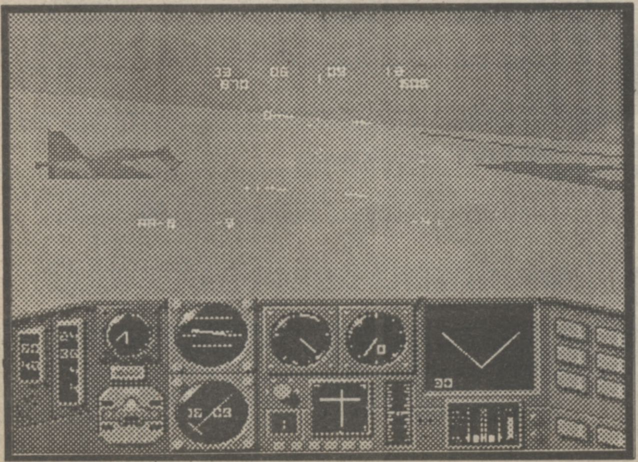
At the current prices for these 300dpi machines, Computer Concepts Laser Direct Hi Res podule (£470 inc VAT) plus a Canon LBP-4 (with a street price about £800 if you shop around a bit) looks to be a real bargain. For just a tad more, you might as well treat yourself to 600dpi.

Calligraph is on 0223 461143, Computer Concepts is on 0442 63933.

NEXT WEEK

A look at what's new at the Computer Shopper show.

Ken Coumarin



• **MiG 29 Fulcrum:** *the game that* **Interdictor** *should have been.*

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MACINTOSH

OOPS!

A bit of a cockup, I'm afraid. In the March 16 issue of *Express*, I wrote a feature on Apple's two new printers. Unfortunately, I got a bit wrong. The TrueType typefaces Times and Helvetica, which are bundled with the printers, were not created by Bitstream. They were, in fact, designed by Linotype. Furthermore, Times and Helvetica are registered trademarks of Linotype AG and/or its subsidiaries.

Thanks to Sarah Winthrop of Linotype-Hell for pointing that out.

RUMOURS...

So, what's been happening this month? Well, the new Camelot Computers catalogue was pushed through the door, for one thing. For those who don't know the company, Camelot specialises in shifting software and hardware at low prices. To do that, much of the software is 'grey' imported from the States, which means that getting support from the manufacturers is sometimes a little tricky. On the other hand, if you're not bothered about support and upgrades and things, they often manage to get stuff out of the door fairly quickly. Anyway, back to the catalogue. It's just a small point, but surely when you're photographing your Mac IIsi for inclusion in the catalogue, you'd do well to have a better image on the screen than the floppy disk with a flashing question mark which normally means that something nasty has happened to your Mac...?

And, of course, System 7 is finally with us. After more than two years of development, it's appeared – and damn good it is too. For the full story, refer to the feature elsewhere in this issue; but on a slightly more scurrilous note, I was told earlier this week that while programmers and developers in the States are fairly confident in general, there are over 1,000 minor bugs in System 7 which have been identified but which there hasn't been time to fix. Of course, my source for this was totally unofficial, and I'm sure that the information is incorrect...

FINAL DRAFT

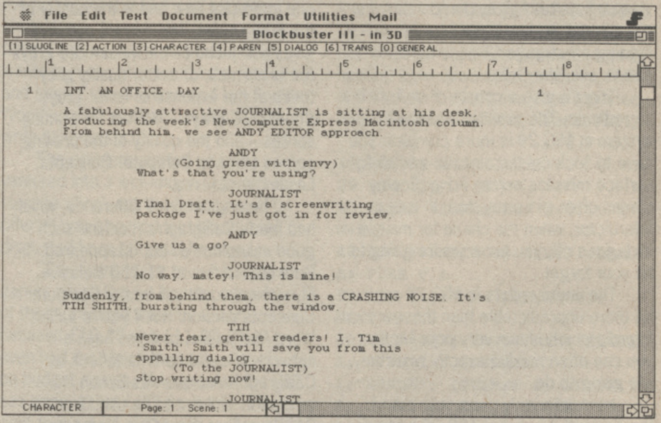
A brilliant package came into the office the other day – so I'm going to enthuse wildly about it now. Actually, it's not the sort of program that everyone will want; but for its rather specialised market, it's the biz (as they say).

Final Draft is a package for aspiring screenwriters; that is, people who want to write filmscripts. If that's not what you're into, then the next few hundred words won't be too relevant to you. But then, we all have our hobbyhorses. If you have a specialist hobby or job and you want to know what's available on the Mac for you, drop me a line (or e-mail me on CIX) and I'll do my best to find out what's about.

Anyway, back to the plot... Screenplays are formatted somewhat differently to, say, scrips for plays. All character names and dialog are centred, for instance, and various elements of the script have different margin settings. OK, you could format a screenplay with a normal wordprocessor; it's just that it would probably take you the rest of your life to do so. And that's why programs like *Final Draft* are created – all the formatting is taken care of, so you don't have to worry that your script will never be read because it doesn't look right (Yes, it's true. They really do reject scrips for that reason).

The program is copy-protected, a 'feature' I wish people would stop using. Basically, you can either run the program off the floppy all the time (which is a pain) or you can install it on your hard disk. But if you install it and then your hard disk dies, you can't install it off the floppy again. Sure, the manufacturers will probably give you a replacement copy, but that's hardly the point.

Anyway, that gripe over, *Final Draft* does its job extremely well. Formatting for each of the different script elements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CHARACTER
Page: 1 Scene: 1

```
1     INT. AN OFFICE. DAY                                             1

      A fabulously attractive JOURNALIST is sitting at his desk,
      producing the week's New Computer Express Macintosh column.
      From behind him, we see ANDY EDITOR approach.

                            ANDY
                     (Going green with envy)
                What's that you're using?

                            JOURNALIST
                Final Draft. It's a screenwriting
                package I've just got in for review.

                            ANDY
                Give us a go?

                            JOURNALIST
                No way, matey! This is mine!

      Suddenly, from behind them, there is a CRASHING NOISE. It's
      TIM SMITH, bursting through the window.

                            TIM
                Never fear, gentle readers! I, Tim
                'Smith' Smith will save you from this
                appalling dialog.
                     (To the JOURNALIST)
                Stop writing now!

                            JOURNALIST
```

• *Any budding screenwriters out there should check out Final Draft; its cost will soon be recouped by the millions of dollars you get for your first script...*

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(character name, dialogue, transition and so on) is effected by pressing the Command key and then a number between one and six – as you press the Command key, a line appears at the top of the screen reminding you what each of the numbers represents. Macros can be set up to speed the entry of commonly-used phrases and so on; these are accessed via the Option key, and again a 'cue' line appears at the top of the screen to remind you what macros you have available.

After you've entered a character's name, the program automatically goes into the correct formatting for dialogue, which saves time; there are other such shortcuts, all of which can be user-defined. The program also keeps an automatically-updated list of all character names, so you only need to type the first few characters – the program fills in the rest.

Final Draft automatically inserts 'more' and 'continued' if dialogue or a scene breaks over a page, and it will automatically number the scenes for you – all of these options are totally user-controlled. In effect, the program makes writing a professional-looking script a totally trivial matter (except, of course, for having the ideas in the first place).

If you're a budding (or existing) screenwriter, you'll find this program invaluable. Unfortunately, it does not yet have a British distributor, although that situation could change. For now, you'll have to contact the manufacturers, MacToolkit, direct on 010 1 213 395 4242, or fax the company on 010 1 213 393 7747. The program costs $349. Oh, and if you really wanted to you could use it as a standard wordprocessor too.

Ian 'Jo Eszterhaus' Wrigley

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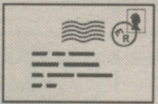

I think I'm in love – an object-oriented software affair. I see hundreds of demonstrations each year, but only a bare handful really strike my imagination. But I went ga-ga over *Interactive Physics*, by Knowledge Revolution.

Interactive Physics is a two-dimensional Newtonian physics laboratory computer simulation. Users create experiments by creating objects on the screen, from a draw-like palette. Shapes are drawn, and effected by springs and ropes. The program calculates the elasticity and friction of the experiment, and then produces a realistic movie.

The program gives teachers and students ways to see solutions that normally could only be read about in a book. Even gravity can be changed, or turned off. If you want to see what the results of an experiment would be on the moon, just adjust the gravity slider to the moon setting.

Included with the program are dozens of preset experiments and a 340 page book, *Physics Interactions*. It contains classroom materials, student worksheets and a teacher's guide to the program. The developer actually talked to educators to find out what would really work. A shocking attitude for a software company!

To get a reality check, I called BMUG's physics teacher, Ron Hipshman. He teaches basic physics at San Francisco State University, and runs the computer program at the Exploratorium, San Francisco's science museum.

He said that simulations are always exciting, but most packages (like *Stella* and *Extend*) don't actually show on the screen what real objects do. Their output is confined to numbers, and graphs, which is the way most people in the scientific community want to view the information. To be able to manipulate physical objects, and do things to them that you couldn't otherwise do, is really nice.

It also allows teachers to do really violent things that can't normally be done in the classroom. Ron said, "The car crash example lets you watch some poor guy fall on his groin, and you know it's not hurting anybody. The windshield almost slices him in half, and it's OK." Now we know why the kids go into physics—the smashing and crashing!

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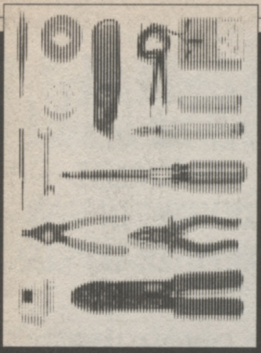


CIRCUIT CITY

The Microvitec Cub is one of the sturdiest monitors around. Keith Pomfret looks for a way to weld it to an Amiga.

Most people who have ever bought a BBC B computer aspired to the Microvitec Cub. This sturdy black little cuboid monitor offered a good, steady and well defined picture and was cased in a steel box resilient enough to take most knocks.

Schools bought them by the hundreds and they became a common sight in any arena where the BBC B was being used in education. Their strong construction and high quality made them a winner in industry too, with Microvitec Cubs being seen in different applications in factories, research and development and even in a nuclear power station.

WHICH CUB'S WHICH?

Before you whip off to the nearest nuke installation and rush out with its prized Cub under your anorak, it's necessary to say that the Cub is a generic name for a series of monitors.

Some have BNC connectors for RGB. Others have a single composite input. Cubs were made with medium resolution screens, high resolution screens and very high resolution screens. The only similarity between some is the case so it's important to know which of the beasties we're dealing with.

If you're intending to modify a Cub 3000 to work with an Amiga, you're in luck. The Cub 3000 was designed to take the analogue output of the A3000 so to run it with an Amiga is a simple matter of having the appropriate lead. This can be made up by any reputable dealer or any of the specialist lead companies.

Otherwise, you'll probably be using one of the Cubs designed for use with a BBC B. Before you do any serious surgery, adjustment or monitor upgrading, check that the monitor that you have matches the Cub specification in Circuit City. If any of the connectors or links don't match then it's unsuitable for the upgrade (or needs to be upgraded in a different way).

RINGING THE CHANGES

First, follow the safety instructions with regard to residual high tension current.

Remove the self tapping screws from the rear cover of the cabinet.

Remove the cover. The first job is on the main low voltage circuit board shown in Figure one. On this board is a strip marked with the legend PL103. Locate it and move the links so that they correspond to the positions shown in Figure 2

Slightly below and to the right of strip PL103 is a short three link strip bearing the legend TL101. The link positions on this should conform to Figure 3.

The adjustments are complete, but for safety you must replace and secure the cover before plugging in and switching on to test. When adjusted in this way to use with an Amiga the contrast control will have no effect on the display. To adjust the brightness levels, the preset VRB (Figure one) should be used. This can only be done with the cover off and care must be taken when adjusting it.

Once the monitor has been plugged in and switched on for testing, it will again retain large amounts of electricity. Follow the safety code.

The cable that connects the 23-pin D video connector on the Amiga to the 6-pin D connector on the CUB should be wired as follows:

6-PIN DIN on CUB	23-Pin D on Amiga	Signal carried
1	3	Analogue Red
2	4	Analogue Green
3	4	Analogue Blue
4	10	Composite sync
5	16	Ground (Earth)
6	not connected	not used

YOU HAVE BEEN WARNED

Messing about inside any mains electrical appliance is dangerous. A monitor can that it still can store enough electricity to kill you even after it has been turned off for hours. Before you consider opening the box of screwdrivers read the following:

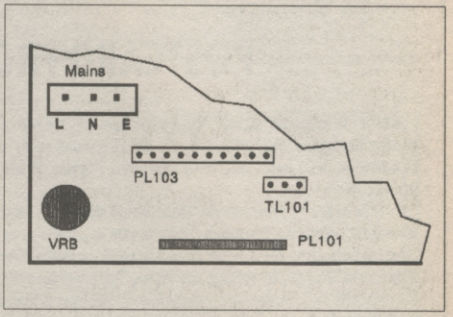
- **Switch off the monitor and leave it switched off for several hours**
- **Switch off the mains supply, unplug the monitor and leave it isolated for at least 24 hours.**
- **Even after all of this time away from power, the residual high voltage high tension current can still bite so be careful. If the above warning worries, baffles or puzzles you in any way, don't attempt the job.**

LEADS FOR LEADS

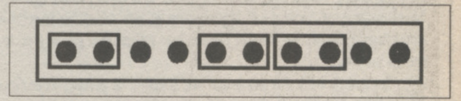
If you can't find a company or dealer nearby who'll make you up a lead, you could try one of these:

RSD	0992 584205
Simpson	0332 760353
Meedmore	051-521 2202

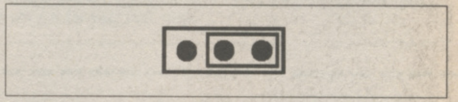
Alternatively you could buy the bits and have a go yourself. Simpson will sell you the bits separately.



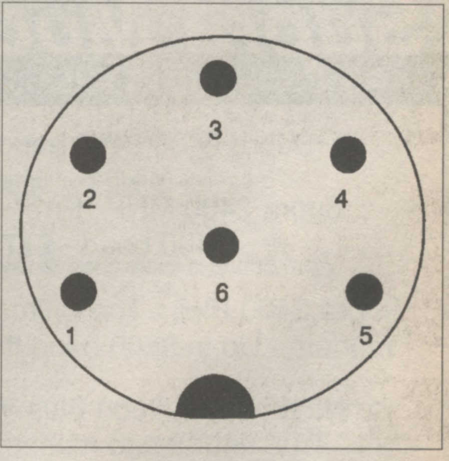
- *The low voltage board in the CUB (Fig 1).*



- *Set the links like this (Fig 2).*



- *This is how panel TL101 should look (Fig 3).*



- *The CUB DIN video connector viewed from the rear (Fig 4).*

IS YOUR MONITOR COMPATIBLE?

If you're looking for a monitor to add to your computer, you'll have to check if it's compatible. Colour monitors fall broadly into two kinds – digital and analogue. An analogue monitor takes a gradually incremented signal and can display an almost infinite number of colours only limited by the coarseness of adjustment.

A digital monitor works on discreet levels. If there are three discreet levels and three colours (red green and blue) the monitor is capable of displaying 27 colours. These colours are set and the only way to get any form of shading on this sort of monitor is with software that allows graduated dithering.

Mono monitors are generally green, amber or paper white and accept a composite mono signal.

When checking for compatibility watch for the synchronisation rate: check the sync rate of your machine and make sure it is compatible with the monitor before attempting to connect them.

Atari ST users should be especially careful as the sync rate for its colour and high res mono displays are different.

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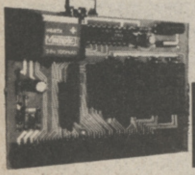

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N.B. Due to the large variance in design of the Atari ST, there is a small minority of boards in existence which may require a little soldering.

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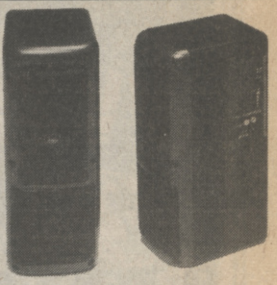

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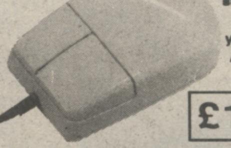

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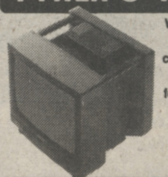

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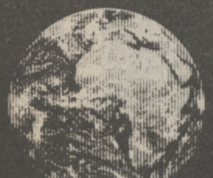
WHOLE WIRED WORLD

There's a whole world of computer news out there and Steve Gold's the manto tell you about it. This week, a compression system that really compresses, multiple updates for Lotus 1-2-3 and Multimedia PCs from Tandy.

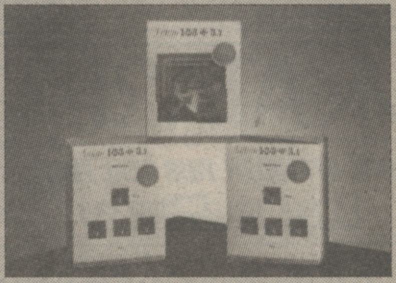


LOTUS UNVEILS NEW VERSION OF 1-2-3

Lotus' US division has unveiled a new version of its popular *1-2-3* spreadsheet software for PCs. Version 2.3 of *1-2-3* includes an interactive 'What You See Is What You Get' (WYSIWYG) display and presentation-quality output capabilities, spreadsheet auditing tools, a file-viewing feature and interactive dialogue boxes, as well as improved help facilities and error reporting.

Release 2.x is for all PC users. 286- and 386-based system users are catered for with Release 3.x, which runs under DOS and OS/2. Lotus is also currently beta testing Release 3.1 Plus, an upgrade to Release 3.1. US shipment expected within the next few months.

Prices remain the same in the US on the upgrades, so the UK pricing should be about the same as well.



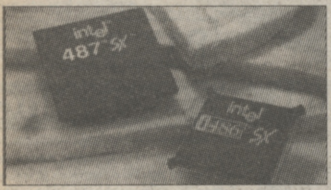
• *The upgrade to* Lotus 3.1 *is being beta tested now*

WORDUP! BOUGHT BY ATARI

Atari US has purchased the source code and reproduction rights to *Wordup!* a graphics and word processing system that pioneered the document processing field in the Atari ST marketplace.

As yet Atari's plans for the software are not clear. US spokesman Bob Brodie, however, says that the package may be renamed and reissued with the ST. This suggests that Atari will bundle the package with all STs sold. According to the ZNet on-line newswire, possibilities include bundling the software with the FSM G-DOS and offering it as a free startup package in all new Mega STe and TT computers.

COPYRIGHTING CHIPS



• ***Preliminary legislation is passing through the US Government to protect chip designs.***

Software may be protected under international copyright rules, but did you know that chip technology, technically at least, doesn't seem to be covered? No, neither did I. Maybe that's why preliminary legislation is passing through the US government that aims to encourage the development of worldwide protection for supercomputer chip designs.

According to the US Government, semiconductor chip designs are not covered by traditional patent or copyright laws, but instead are covered by the 1984 Semiconductor Chip Protection Act in the US. International copyright law does not, officials claims, cover chip technology designs. That could all change soon.

Government officials claim that the legislation is needed to extend transitional protections for four more years, during which time it is hoped that the US will be able to negotiate permanent, multilateral protection of chip designs. While the US government currently has reciprocal copyright agreements on chip copyright protection with 19 other countries, it has failed to negotiate a truly international treaty to prevent widespread piracy of chip designs. The proposed legislation is designed to correct this.

CHEAP LASER PRINTER

Hewlett-Packard's US division has unveiled what it claims is its most affordable desktop laser printer to use the HP PCL 5 printer language, the $1,595 HP LaserJet IIIP printer.

According to the company's Palo Alto, California headquarters, the 4ppm (pages per minute) unit uses resolution enhancement technology to produce the best 300dpi print quality of any printer in the sub-8ppm class.

HP's second 4ppm laser printer, the new machine is compatible with HP's other PCL 5 laser printers, the HP LaserJet III, IIID and IIISi printers.

TANDY'S MULTIMEDIA PCS

Tandy's US division, Radio Shack, has unveiled its first Multimedia Personal Computer (MPC) machines.

So what's MPC? It's a PC that, like the original MSX (remember that?), adheres to a set of minimum hardware and software standards for PCs set by a group of computer manufacturers – headed by MIcrosoft and Tandy – at the tail end of last year.

Unlike MSX the MPC standards do not specify that programs designed for one MPC machine will run on another. What MPC is designed to do is to standardise the multimedia PC environment between PC manufacturers.

Tandy chose the Demo '91 conference in Palm Springs, California, earlier this month, to launch its five new MPC PCs. In addition, the company rolled out a set of conversion kits designed to turn any standard PC – not just its own – into an MPC machine in a few minutes.

Each of the new MPC machines come with a Tandy CDR-1000 internal CD-ROM drive, a multimedia expansion adaptor system with audio circuitry and CDR-1000 interface, a single 3.5 inch floppy drive, 512K of video memory (for Super VGA graphics) and a mouse supplied as standard.

Three of the new machines come with 2Mb of RAM and a 40Mb IDE Smartdrive as standard – the M2500 XL/2, a 16MHz 80286-based system costs $2,599, the M4020SX, a 20MHz 80386SX-based system retailing for $3299, and the M4016DX, a 16MHz 80386-based system for $3,999.

The remaining two models in the Tandy MPC family are a 25MHz 80386-based system, the M4025 LX, costing $4,999, and a 33MHz 80386-based system, the M4033 LX, costing $5,499. Each comes with 4Mb of RAM and a 105-MB IDE Smartdrive.

The upgrade kits come with a choice of internal or external CD-ROM drives, and cost $799.95 and $899.95.

Tandy UK has not guaranteed to launch the machines here, but given the high level of interest in MPC technology, and the fact that these are the first MPC systems to actually ship to the marketplace – in the US at least – it's a fair bet you'll be seeing them in Tandy stores soon. In the meantime, you can contact Tandy US for further information on 0101-817-390-3011. ■

ADDSTOR LAUNCHES `LOSSLESS' PC DATA COMPRESSION SYSTEM

Addstor of Menlo Park, California, has unveiled *Superstor*, a program that overcomes a common problem with data compression systems. Packages such as ARC-ing and ZIP-ing programs compress 7/8-bit files into pure 8-bit ones, reducing the amount of disk space these files require. But because of the nature of the encoding systems used, some 8-bit files actually expand when `compressed'.

Addstor claims that *Superstor* gets rid of this expansion problem. The $129 software package is designed to compete with *The Stacker*, a hardware/software system that was first seen at Comdex Fall last November. *Superstor*, however, is software-only, so it will even run on a laptop PC, as well as conventional systems. OK, it is not as efficient as *The Stacker*, but it is dead easy to install and does not take up any expansion slots.

Superstor compresses data by a factor of two or three. The driver program, which is a TSR package, consumes just 28K of system memory, plus another 4K per drive on the system. If you have a 286/386-based system, the program will load into high memory.

The secret of the *Superstor*'s success is that it writes to the disk on a sector by sector basis, rather than the cluster system used by existing compression programs. This allows the package to make more efficient use of available disk space. So while the error-checking codes add to the actual data recorded on the disk surface, the advantages of sector recording outweigh the losses.

Contact: AddStor, 3905 Bohannon Drive, Menlo Park, CA 94025, United States. Tel: 0101-415-688-0470.

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TECH TIPS

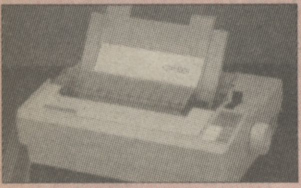
Need power than can be portable, but last for longer than a few hours? Bought a second-hand machine and can't get in to work? Holding on to some terrific tips that other readers could use? Write to Keith Pomfret, Tech Tips , New Computer Express, 30 Monmouth Street, Bath BA1 2BW.

Colour Swift

FOLLOWING a recent review in the PD column I bought Neochrome Master, fitted a colour kit to my Citizen Swift 9 printer, but could get none of my masterpieces on to paper. I have set the appropriate dipswitch on the printer and using printer driver supplied with my ST, which has been informed of the change to colour, cannot get any response when I ask it to print from any source I have tried.

The printers can be set to print in any single colour of my choice and mechanically the printer colour kit seems to be functionary. Have I missed some simple step in setting things up, or should I get someone to look at my printer, or should I get someone to look at the ST?

Frank Savage, Stirling.



• It's a lovely printer but you'll need the right driver to get the best from it

BEFORE you have the printer or the ST consigned to the repair man, there are still a couple of cheaper avenues open to you. Firstly, are you using the correct printer driver? A telephone call to Citizen could help, but in my opinion your best bet is to contact a reputable PD library. PD libraries tend to have disk upon disk of utilities and printer drivers and more importantly, know the problems that people have had persuading different configurations of different printers to work with various programs. Often, a printer driver may work with several programs and then fall over with others.

Your salvation is probably through picking the right driver for the job.Try Goodman PD on 0782 335650 before you trek off to your repair man.

Amiga DTs

PLEASE can you try to point me in the right direction with two problems on my A500:
1) The mouse-pointer "jitters" when in some positions on the screen. It alternates between two adjacent pixel positions at about 3Hz. This also happens when, for example, using *DPaint* brushes. Very annoying.
2) Joysticks fail to move "right" most of the time, though the other directions are OK. This happens with two different joysticks, which are OK on other computers.

I have looked very carefully at the joyports-to-motherboard connections, which I understand have been known to fail, but can see nothing untoward. There is nothing else wrong with the computer as far as I can tell. I suspect Denise, but before forking out rather a lot for a replacement I'd be glad of your opinion on the matter. Anyway, Agnus is involved too, isn't she?

A third (and different) question: My AdRAM RAM expansion occupies the trapdoor (and piggy–backs the Gary chip) so I obviously cannot use the KCS PC board. But what about the ATOnce? Is that likely to work properly in the presence of the AdRAM?

DB Beames, Cheshire.

IF YOU are experiencing a jittery mouse pointer and it is always at the same place, you should have the Amiga and specifically the mouse port looked at by an expert.

Things that you can try to eliminate possibilities are a different mouse (although it doesn't sound as if it's the mouse) and test all of your software to see if any are unaffected.

Your joystick problem also points to a problem within the Amiga. As this sort of problem can be caused by a short circuit, it's necessary to get it sorted straight away. A chat with Amiga technical afficionado Mark Smiddy confirmed that there shouldn't be a problem running an ATOnce with AdRAM, but he pointed out that the ATOnce connector should be plugged into the Gary socket, then the AdRAM connector and then finally the Gary (Gate Array) chip.

Voda-Moda

Is there a way of connecting a mobile phone to a modem without using an acoustic coupler? The acoustic coupler loses data and the line drops out too much to make anything but the shortest text file viable. My phone is a Panasonic C and I am on the Vodaphone net.

Charlie Mesnes, Wigan.

CONTACT Racal for details about the CDLC data modem. It costs £500 and there's a cable available to allow you to connect it directly to your phone. The modem is catalogue number 881/01/0006 and the cable is 556/01/0007. Racal is on 0635 503236. (And watch the phone bills ... they'll be horrific.)

Speedy Speccy

Here is a tip for programmers and the like who are fed up on the slow editing on the 128 speccys. The simplest way of doing it is to simply press edit in the basic mode and choose screen option. Since the editor only has two lines to scan as opposed to the whole screen the editing is much quicker. However, if your listing is more than two lines long to each line number, the editor will get confused as some of the listing is on -screen and some isn't.

Here are a few things you may not know about , the RAM disk in the 2A and +3 using the screen option make a nice pattern of something on the screen. Save it to RAMdisk by typing Save "M:" then save "filename", screen f. Then try loading it by load "filename",screen$ and notice how quickly it comes on screen.

The other thing you may not know is that you can save variables on to the ROM disk, so you need not worry about crashing the computer after you have saved some essential info because the RAM disk does not get erased when the machine crashes or if you accidently type "new. I'll leave you to work out how to do it.

Adam Tomasso, Inverness.

THAT SHOULD kick in the turbo for Spectrum programmers wanting to cut delays down a bit. If anyone has any useful programming tips, send them into the usual address.

PC upgrader

Where can we get a 16MHz all in one system board to upgrade a PC to an AT?

Mark Walsh, Norwich.

YOU COULD try any of the following:

The Chip Shop	061-476 3070
Chipboards	0483 797959
OMD	0533 313188
RSD	0923 211060
Watford	0923 37774
Hi Voltage	081-681 3022

We recently built a rather nice 386 for the office using bits bought from Silica Shop on 081-309 1111 and can heartily recommend it.

Under cover

The Psion Organiser is a pocket sized useful computer and you don't give it much coverage. My problem is that I need more software than is provided with it and can't find any.

Mostly, I need a database to catalogue the various chrome parts that I carry in my classic auto business. This way, when I visit a client, I can check instantly whether the part needed is in stock. The computer dealer said that he doesn't stock fripperies for 'toys' like the organiser and that I will need to make a serious hardware modification to the organiser to make it run a database. What modifications do I need to make, is it within the

scope of an enthusiastic amateur and what will it cost?

Martin Borman (no relation!), Ribchester.

WHAT YOU want to do should be possible without hardware modification, although that will depend on the size of your database. If your database is too big for the Psion, you may need to break it into discreet sections and load them separately.

For a full catalogue of what's available for your organiser, give Psion a ring on 071-262 5580.

TIP! Arnie's friend

THE AUTHOR of your disappointed "Help! CPC Plus" might like to have few more tips about his new machine. I owned the original Arnold and then the CPC128 and gained a great deal of knowledge and satisfaction from them.

There is one book which I'd strongly recommend: *Ready Made Machine Language Routines for the Amstrad* by Joe Pritchard, Melbourne House Publishers.

However, it is best to buy the excellent Maxam Assembler from Arnor Ltd. In its neat ROM form inside a Rombo box it gives wings to the Z80. Not only does it have the full Assembly Editor environment but blocks of Assembly Language can be used simply from inside Basic programs - very effective speed is needed.

The range of delights available in ROMs from Arnor don't stop there. There are several others, including *Protext* (and what could be better than a resident word processor and spelling-checker?), especially my favourite BCPL - a real pedigree compiled language which is a good way to start learning real structured programming, and so slick to use! There is also an excellent book on BCPL for the serious student.

The CPC - a disappointing machine? No such thing - look at all the good software it has built up for it; and can you name even a top-price computer that has a word processor like *Protext* in ROM which is there at switch on?

John Gray, Eastbourne.

YOUR LETTER reads like a top ten turbo upgrade kit for the CPC and we heartily endorse your choices.

It's interesting that you mention BCPL. This is a language that has lived in the shade of 'C' and all of the other trendy computer languages for too long.

Scraping around in the *Express* archives I found several references to it some four years ago but it seems to be out of fashion. If my memory serves me well, some of the original Amiga development was done in BCPL as well.

HELP Experience

The library managed to weigh my carrier bag down with books about simple electronics projects and book learning is fine, but as my teacher used to say (back in the 50s !) "There's no substitute for hands on practical experience."

I don't see your magazine every week, but a friend remembered you having looked at a kit that teaches what electric and electronic components are and what they do. Could you either repeat the article or tell me where to get the kit from?

Martyn Troon, Telford.

WE COVERED two electronics projects in Circuit City. One was an off-the-shelf' kit from Tandy for about £30 that documented 130 electronics ideas which could be built using the kit. These ranged from simple circuits using only a few components to more complex things such as radios and moisture meters.

The 130 in one Electronic Project Lab from Tandy is battery powered and contains documentation to guide you through each project. The other electronics project we covered took the concept of the Tandy 'multi-project' and built it on to a modular bread board.

The best way to approach what you want to do is to start off with a Tandy kit and as your familiarity with practical electronics increases, then consider building something for yourself using the breadboard principle. Keep tuned to Circuit City for more breadboard ideas.

HELP Laptop power

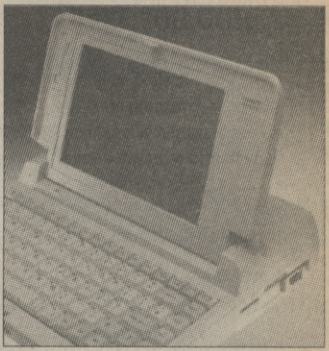
Compared with a year ago there are dozens of portable computers on the market. The problem seems to be battery life. No matter what the manufacturers say, all of the magazine reviewers agree that most machines won't last above a couple of hours away from the mains. If I buy a portable machine and am tied down to returning to a power point every couple of hours, it isn't much use to me in the flexibility stakes.

What alternatives do I have? Some of the stranger machines like the Poqet and the Psion MC series look to run MS/DOS, but there's no way of getting things in and out other than down the serial port. Is there a non-disk drive MS/DOS portable that will connect to a disk drive by some sort of docking mechanism for loading and downloading to a standard disk drive?

Helen Jones, Llanelli.

MOST of the non disk drive machines have some way of transferring other than by a serial cable.The Psion MC series that you mentioned has a disk drive interface built in and an external 3.5-inch floppy drive available direct from Psion allows you to read and write 720K and 1.44Mb disks that can be used in a standard PC.

There are two Psions available, but the £1,295 MC600 is the only one that uses MSDOS. Another (and cheaper) solution to your problem is to use a standard laptop and carry extra battery packs. With laptops costing as little as £400 for a floppy drive model and £500 for one with a 20Mb hard drive, it's worth considering spending some of the money that you've saved on a couple of spare battery packs.



• Using a floppy laptop with extra battery packs is the cheaper way to compute on the move .

If a machine lasts two hours on a pack and you have four packs, you've enough power to be productive for a working day. If your idea of mobile is being able to work in the car, you can utilise the car's battery with some laptops that have a car cigarette lighter adaptor.

HELP Big floppies

At an auction, I bought an old CPM computer with four built-in hard drives and four floppies.

When I got it home, I found that the floppy drives are an unusual size, over two inches wider than the more common 5.25 inch disks. Is this usual? Where can I get more of the disks? Also, can you think of a good practical use for the machine?

Mark Playne, Portsmouth.

A LOT of the older CP/M machines used 8-inch disks. While they aren't exactly off the shelf products stocked by all and sundry, most computer retailers can still get them. Alternatively, try computer fairs, the *All Formats Show*, or even radio rallies as a source of cheap second hand disks and machine spare parts.

A good practical use for the machine is perhaps a bulletin board. I chatted to Dave Gorski of Aspects BBS in Manchester and he confirmed that for some months, a CP/M machine had been the home of his BBS. In order to set up a BBS, you'll need some comms software and a good automatic modem. If you're working on a budget, you'll find that there are some excellent BBS software packages available in the public domain. You'll need an auto-answer modem too. ■

HELP Arch upgrader

The Amiga with its crappy operating system, nasty blue workbench and snails pace disk drives has finally been laid to rest. A trade in for an Archimedes has allowed us access to the machine that we really wanted when we bought the Amiga as a stopgap.

During the dark days under the Commodore, one useful and educational thing that we managed to do with the Amiga was sample, manipulate and use sound.

The A500 didn't crash or guru, we learned quite a lot about noise and spent many a pleasant hour messing with sounds sampled from CDs.

Is there a simple to use and understand sampling package from the Archimedes?

Martin Walsh, Peterborough.

FIRSTLY, if you're using someone's copyright sounds from a CD you should make sure that the Copyright holder gives you permission.This means writing to record companies, but better legal than locked up ...

The software package that will do what you want is Armadeus from Clares and this supports several hardware sampler boards (Armadeus, Armadillo, and Unilan to name but three.) To get a copy of this whizzy program contact your local computer shop or if they haven't got it, ring Clares direct on 0606 48511.

• It's no spelling mistake. Armadeus is a MIDI compatible sampler for the Archimedes.

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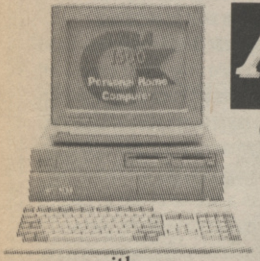
ST MIDI USER seeks contacts with whom to exchange sequences, patches, (KLE MT32), C midi source code, midi PD utilities etc. Glenn. 0932 567614, eves. No games.



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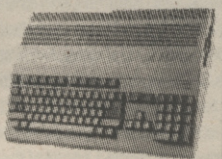

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ATARI ST demos to swap. Also wanted, Atari 2600 carts. All letters sent to Peter King, 5 Marlborough Road, Dover, Kent, CT17 9NO. Will reply to all letters, promise. Peter.

ATARI 520 STFM, upgraded to one meg memory, one meg internal drive, one meg Cumana external drive. All leads included, large selection of software, books and magazines, excellent condition, £320 o.n.o. Phone Neil, Leeds 0532 531346.

ATARI ST: DTP, utilities, graphics, art demos etc. Software to swap and exchange. Contact: Scott Cairnus. 206, Kirkshaws Road, Strathclyde, ML5 5AN.

ATARI ST. Half meg upgrade, two internal drives, £250 o.n.o. Also a Star LC-10 colour, four months old, £150. No offers, or £350 for both. Phone Leamington Spa. (0926) 889208. Ask for Steve.

ATARI ST compiler, games, Startrek, Deepspace, Blue War, Barbarian, Sundog, The Pawn, many more £5 each. Kickoff 2, £8. Tel: 081 570 3690.

ATARI ST PD needed! Send SAE to Stuart Woodhead, 390 Coulsdon Road, Old Coulsdon, Surrey, CR5 1EF, or phone (0737) 554536. Please send me your list and let me know what PD you are most interested in.

ST CODERS, artists, musicians, wanted to join rising new PD group, the Bombout Brothers. Please write to: Adrian Speight, 25 Gilbert Crescent, Llanell, Dyfed. All letters will receive a reply!

FOR SALE, 19 original ST games, plus a multiface cartridge, mostly great games, like Xenon II, New Zealand Story etc. I won't split, £130, plus postage. Paul, 62 Carmoney Road, Eglington, C Derry, NI BT47 3PH.

WANTED please can anyone lend or sell me any documentation from the Atari ST developers kit. Send to Paul, 62 Carmoney Road, Eglington, Co Derry, NI BT47 3PH.

520ST, for sale. A/B boot switch, leads, box, manuals, £200. Also 51/4 ST drive £60. B.A.T. £20. Lemmings £20. Both ST. Ring Stockton, Cleveland. TS20 ISH.

AMIGA A500 £300 includes games, manuals, joystick, modulator, Batman pack. All in excellent condition. Also Rank Xerox 4020 colour inkjet printer. £995. Tel. (0495) 272358.

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ORIGINAL clip art, not PD, £3.50 per disk, including print-out scanning service available, SAE for details. 136 Oakdene Crescent, Nuneaton, CV10 ODT.

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AMIGA A500, half meg upgrade, action replay, second drive, 100 disks of games, demos etc. Will sell just computer or extras separately. £300 for all, or call for spilt. Phone Alex Mclean on Edinburgh. 031 669 2374.

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AMIGA 2000 includes printer, RAM-EX, floppy disk drive, good condition with wide range of software £300 o.n.o. Phone (0332) 511116 and ask for James (no games software).

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THREE STEPS TO PERFECTION

Updating, debugging or using a program that you haven't looked at for six months can present an endless stream of problems. Mary Branscombe shows you how to make easy work of it.

However good the program that you have just written is, it will seem terrible when you come back to it six months later and try to understand how it works. It will be even worse if you didn't write the code in the first place and you have to use it, update it or debug it.

There are a number of ways to make programs easier to understand and most of them are referred to under the catch-all heading of "programming style". That can cover anything from indentations in your code to the use of variables and constants in your program.

COMMENTS

Putting comments in your program that tell you how it works and what does what will be the easiest way of making it easily understandable at a later date. You should always write some form of documentation, telling the user what the code does and how to use it, but the comments are for programmers who need more information.

You should write the comments as you write the program, so that they form a running commentary. If you have problems with the code, the comments can help to show what's going wrong and what you thought a piece of code was going to do. If you add comments once the program is working, you will be tempted to leave things out because they seem so obvious. Be careful - they will seem anything but obvious to another programmer, or to you in six months time.

The computer ignores all the comments; they are only there to help you, which means you can put in as many as you like. They won't make the program any less efficient and they should make the programming much easier.

If you write out a plan for your program, you can include it in the program file as the basis for your comments. Use the relevant line of the plan to introduce each section of code and then explain what is going on in each section.

You can use comments at the beginning of the program to give you some useful information. You should always include a header something like this:

```
    /*File: mortgint.c
      Author: M Branscombe
      Date begun: 4.2.91
      Date revised: 28.3.91
      Purpose: calculate monthly mortgage payments
    Syntax: interestCalc(rate, length, amountBorrowed)
      Comments: this deducts tax relief from payments.
Tidy up the printing*/
```

This makes it easy to find out which version of the code you are looking at and how to call the program you have written.

You can use the Comments: section of the header to make a note of any changes that you need to make to the program, so that you can see at once what has to be done.

You also need to keep track of the names you use in the program for variables, constants and procedures. It is very easy to incorrectly type the name of a procedure or to use the same name for two different variables. If you include lists of each of these at the beginning or end of the program, with a short description of what each one does, then you know what you are using. If you need a new variable, you can easily check that you aren't using an existing name. If you get a syntax error that says something like "undefined identifier", this means that you are using a variable that you haven't told the program about. If you haven't simply forgotten to define the variable, then you may have spelt it wrong somewhere in the program. Making a list of variables means that you have to decide on one form of the name and use it.

SAY WHAT YOU MEAN AND MEAN WHAT YOU SAY

Unless you are programming in a language that restricts you to unintelligible variable names, usually a single letter, try to use meaningful names. For the program to calculate monthly interest payments from the interest rate, the amount of the loan and the length of the mortgage, you will need variables to hold these and probably some temporary variables to hold intermediate calculations. You could use X, Y, Z, A and B, but that won't make it easy to see what is going on if you want to extend the program or just debug it. Variable names like InterestRate, AmountOfLoan, LengthInYears, Temp1 and Temp2 will make things much easier.

However, don't make the names too long. The more you have to type, the more mistakes you are likely to make and long names may be split over two lines, making it harder to see the layout of the code.

Some languages, like Prolog, will insist on variables beginning with upper or lower case letters. Even if it makes no difference to the compiler or interpreter, you can use capitals to make the code clearer. Decide on a way to distinguish constants, variables, procedures and keywords. It doesn't matter what you do as long as it is readable and you are consistent. One way is:

All variables begin with a capital letter, so you get Variable and AnotherVariable.

Put constants in capitals: CONSTANT

Put any keywords in lower case: while, for, do

Write procedure names in lower case, using hyphens, underscores or capitals to separate words: interest-calculation, interest_calculation or interestCalculation.

UNDER AN ALIAS

There will usually be one or two things in every programming language that you are always getting wrong, because you can't remember the construction. For example, many programmers who have used other languages confuse the equality and assignment operators in C. If you write `a = b`, you are copying the contents of variable `a` into variable `b`. If you write `a == b`, you are checking whether the contents of `a` and `b` are the same. If you find that you are writing `a = b` instead of `a == b`, you can define another operator for equality - an alias for `==`.

This code will define an operator called `EQ` which C will translate into `==` for you every time.

```
    #define EQ ==
```

Now you can write

```
    a EQ b
```

If you are used to the Pascal assignment operator `:=`, you may find `=` difficult to use and you could define another operator instead:

```
    #define ASS =
```

Now you can write

```
    a ASS b
```

If you want to break up terse C constructions, you can define an alias for a blank space. There is no `do` keyword in C and the `while` construction can be confusing, because it is simply **while condition action** and you may find it difficult to tell which is the condition and which is the action. If you define do as a blank space, you can put it into your code and the compiler will ignore it, so that you can write **while** condition **do** action. The code would be:

```
    #define do  /*a blank space*/
```

Other languages have similar facilities. In Prolog, you can define English words as operators, to make the code easier to understand. You simply decide whether the word will go before or after a clause or between two clauses and define it as prefix, suffix or infix accordingly. The codes for this are `xf`, `fx` and `xfx` - `x` refers to the operator and `f` to the rest of the program. You can then write:

```
:= op(and, xfx, 999).
check FirstValue and Second Value:=
    check FirstValue,
    check Second Value.
```

The number is used to decide which operator the computer will deal with first. The multiplication operator has a value of 4000, for example, and will be the first thing that the computer looks at in any clause that involves multiplication. ■

The EVENT HORIZON

Who's doing what, with what, with whom, how, why and where. . .

THE PLACES TO BE . . .

Computer Shopper Show 10-12 May
At the Alexandra Palace, London. Info: 081-868 4466.

PC Database Day 15 May
At the the Ramada Inn, West London.

The host companies are Nantucket UK, which supplies the Clipper package, and System C, supplier of the Sycero program generator family. Fox Software will give its first full UK demonstration of *FoxPro 2.0*, a dBASE IV compatible relational database management system.

Then follows a talk from Henley Business Software on its range of client-server packages that link together applications running under Windows 3. The day finishes with the exhibition of *Superbase 4* from Precision Software.

Other companies will be there, providing add-ons for the Clipper, Foxpro and dBASE programs. Admission is free. Call 071-385 1255.

All Formats Computer Fair 18 May, 9 and 22 June
At the National Motorcycle Museum, Solihull on 9 June, and at the New Horticultural Hall in London on 18 May and 22 June. Info: 0225 868 100.

CD ROM Europe 21-23 May
At the Novotel, Hammersmith, London. Info: 0733 60535.

Virtual Reality '91 5-6 June
At the Conference Forum, London. Info: 071-931 9985.

OIS IMC '91 2-4 July
The document image processing exhibition/conference at the Wembley Conference Centre, London. Info: 203 226 6967.

PC World Forum 9-14 July
In Moscow. Info from Terence Coe on 010 1 508 820 8122.

The International 16-bit Computer Show 12 July
The 16-bit Computer Show, for Amiga, Atari and PC users, is now in its fourth incarnation. Like the previous one, which attracted more than 150 exhibitors and 21,000 visitors, it will be held at the Novotel Hotel, Hammersmith, London.

Visitors can try out and buy just about any hardware and software. Many new products are also expected to be launched, both in the home entertainment and professional areas.

So far 100 companies have booked space, including Arnor, Checkmate, GFA Data Media, HiSoft, Memory Expansion Systems, Precision Software and Rombo. Another 40 to 50 are expected.

Advance tickets cost £3, call 0726 68020. Admission on the door is £5.

The Leeds Computer Extravaganza 13-15 Sept
At the New Exhibition Centre at Leeds University. Info: 0532 677 657.

Image Processing '91 29-31 Oct
NEC, Birmingham. Info: 081-868 9933.

Computer Graphics '91 5-7 Nov
At the Alexandra Place in London. Info: 081-868 9933.

Desktop Cad '91 5-7 Nov
At the Alexandra Palace in London. Info: 081-868 9933.

Computers in the City 12-14 Nov
At the Barbican Centre in London. Info: 081-868 4466. ■

MEL CROUCHER - TEN YEARS AFTER

0898 299399

• *Mel Croucher: bringing the fun back to games.*

Mel, inventor of the computer game budget compilation and multi-media package, has some big news...

Q: First, what sort of background did you come from?

Mel: I'm an architect. I used to build skyscrapers in the desert for a Sheik. I'm also a musician and writer - a bit of a Renaissance man. I got into map making, visual and audio guides, and then into computers by a natural progression.

Q: Did you write the games yourself?

Mel: No, I worked with Paul Cooper (of Quicksilva, Electric Dreams, Thalamus). I worked on the ideas and graphics, and did the cartoon ads that appeared on the back of Popular Computing.

Q: Did anyone ever win Pimania? There was some controversy that the prize didn't exist.

Mel: Oh, ye of little faith. Yes, two school teachers in Yorkshire won the golden diamond. It took them two years.

Q: Who wrote the stereo sound track for *Deus Ex Machina*?

Mel: Me, with Ian Dury, John Pertwee and Frankie Howard. You could say it was the first celebrity endorsement of a computer game.

Q: Where you happy with its success?

Mel: Well, since it was sold mostly though mail order, it did pretty well. When you look at games today, they sell say five thousand copies. By the time shops, distributors and publishers take their cut, they can't be earning much more.

Anyway, with a Spectrum and a tape recorder, what can you expect? In about two years' time there'll be machines ready for it. CDTV looks interesting...

Q: What have you been doing since?

Mel: Journalism, writing books, consultancy work. I did a Despatches program for Channel 4 on computer crime.

Q: What do you think of the games industry at the moment?

Mel: Well, the graphics and sound are very flashy, but the game play is utter s..t. It's still ping pong and chess. Everybody's playing so safe. The machines are good, though. It used to be that software led the industry, now it's the machines.

Q: What are you up to at the moment?

Mel: Paul Cooper and I have teamed up for the first time in six years; and I can't wait to get back in and innovate. The Piman is back, now called Euroman and living in France. In a few weeks we'll be launching a whole series of game modules, each with a prize: air tickets, cars, that sort of thing. The big one will be a chateau in France.

We'll probably get lynched, because it's all PD. But the software industry has been good to me in the past; I'd like to give it something back. Share and enjoy.

The programs will run on Amigas, STs and PCs. Any interested readers should send an sae to PO Box 1992, Southampton, SO9 7XH.

SOFTOGRAPHY

Title	Publisher	Year
Can Of Worms	Automata	81
Pimania	Automata	82
Groucho	Automata	82
Deus Ex Machina	Automata	84

Golden Moments

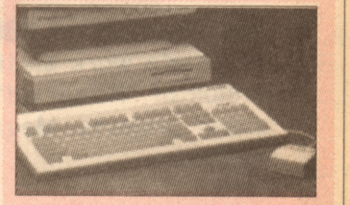
● God may not be a computer, but he certainly gets some help. It was a year ago this week when *Express* reported the computerisation of the Vatican. Its telephones, invoicing and warehousing (where the incense is kept, presumably) are all controlled by a collection of Bull DP6s and PCs.

"Man's pre-eminence over machines must be remembered," said the Pope on a visit to Olivetti.

● This time last year ago also saw the first civil action being taken under the Data Protection Act.

Neil Foster decided to take proceedings against the Home Office and Wiltshire Police Force after being wrongfully arrested and charged with driving while disqualified. Incorrect information on their computer had led them to the wrong man.

Thankfully, after four months of work, Neil managed to track down the real culprit and clear his good name, but not before losing his job, car and savings and being threatened with a prison sentence. It makes cashpoint failures seem a bit more palatable.



• *The Arc – disappointing price.*

● It was two years ago when Acorn released the 'cheap' version of the Archimedes machine, the A3000.

It is the only home computer to use the advanced RISC (Reduced Instruction Set) style of processor, a system which sacrifices some of the obscure machine code instructions in favour of incredible speed benefits. It also has high-resolution colour graphics and a sophisticated multitasking operating system.

It was priced at £659 without a monitor - a figure which disappointed many industry pundits, hoping for something more competitive. Looking back, it now looks like a mistake: the Archimedes certainly hasn't taken off in the way it deserved.

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SPOTLIGHT ON

JAM: AMIGA FANZINE

JAM **was the brainchild of ex-Amiga Computing editor Jeff Walker and computer shop owner Alex Aird. It was conceived as a fanzine for Amiga owners more interested in productivity and serious computing than playing** ***Ninja Turtles.***

After the first issue, Alex jumped over the side and left ***JAM*** **in Jeff Walker's capable hands and since then it has become the 'serious' Amiga alternative to a news stand magazine.**

It has a very professional shhene for a fanzine and is packed with information and news as opposed to endless speculative meanderings of many fanzines. Reviews of hardware and serious applications are especially good.

JAM **costs £19.95 for a year's worth (12 issues) or a couple of quid for a single issue for a taster.** ***JAM*** **is on 0895 74449. Write to 75 Greatfields Drive, Hillingdon, Uxbridge Middlesex UB8 3QN.**

SHOPPING EXPRESS BUYERS' GUIDE

While *Shopping Express* is undoubtedly the perfect way to track down the best bargains in the computer world, many people are still, perhaps understandably, wary of buying products via mail order or through personal ads. This is probably because usually you are not able to have a look at what you are purchasing before you hand over your money.

We do everything in our power at this end to make sure that all the advertisements we run are above board. But here are a few tips designed to help take the risk out of buying via mail order or over the telephone.

- **Be precise in describing what you want to buy. Leave no room for error. Feel free to go overboard in double checking details - make, model, specifications, colour, size, the page number and name of the magazine in which you saw the advertisement etc.**
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- **When dealing with companies it is best to pay by credit card, especially for items over £100, as this provides extra cover under the credit card companies' own insurance schemes. Otherwise use a crossed cheque or postal order. Avoid sending cash at all costs.**

THE PD COLUMN

Mild mannered reporter by day, PD nut by night, Frank O'Connor checks out the latest and greatest Public Domain Software. This week: Llamas, music and light...

Caledonia PDL sent a pretty whacky piece of shareware my way this week. It's an ST game for arcade buffs and loonies alike. Does anyone remember Jeff "Yak" Minter? That heavily bearded Atari programmer with a dubious grip on reality?

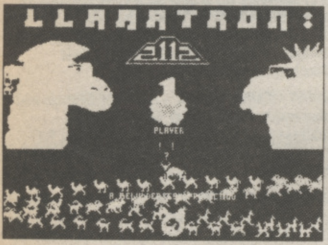
He has surprised us time and time again with his colourful shoot-'em-ups and incrediblly weird psychedelic programming techniques.

More famous even than his programming skill, is his fascination with llamas, camels and all things hairy. He comes up with some pretty bizarre ideas; past gems include *Revenge of the Mutant Camels, Colourspace* and many other wacko creations.

Now Minter has really outdone himself. His *piece de resistance* comes in the form of *Llamatron.* To understand the concept of *Llamatron* you need to know only two things.

One: Kill everything

Two: If it doesn't die, pick it up.



• *Llamatron: Very strange but tons of fun.*

Based on the ancient Williams coin-op *Robotron*, you have to guide the Llama sprite around a screen absolutely infested with all manner of bizarre alien weirdos. We're not just talking twisted slimy green lizardmen. Oh no, you have to deal with rampaging Coke cans and twisted vicious Mandelbrot sets.

You can fire your powerful laser in any direction, blasting the crowds of nasties. They will follow you around, often cornering you in the more hellish confines of the screen. All the bad guys behave in very different ways. Most follow you around stupidly, but many perform acts of completely unfair violence. Exploding shrapnel monsters are hard to avoid.

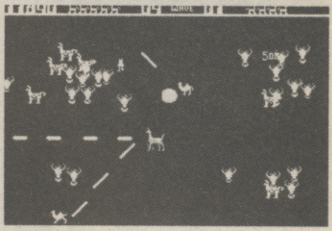
At various points you can rescue stranded baby Llamas, towing them behind you to safety. Safety comes only when you have obliterated everything on the screen. Some of these Llama sprogs bestow extra weaponry upon your poor overworked sprite, three way shots and smart bombs being especially useful.

The pace is frantic because there is so much happening on screen at once. Getting used to the sensory overload this game presents takes some doing, but once you get the hang of it, the mindless carnage is quite exhilarating. No moral worries either, I mean, who cares if a Mandelbrot Set gets killed? No-one that's who and quite rightly so.

The graphics are absolutely perfect; colourful, fast and detailed. The sprites are gorgeous, full of character and perfectly descriptive of the twisted workings of Jeff Minter's unusual brain.

> **'Pace is frantic and the mindless carnage is exhilarating'**

Special mention must go to the sound produced by the ST while this game is running. Some of the most impressive samples you will ever hear blare from the monitor as you play. Better still plug it into a stereo to hear the blood curdling screams as the Coke cans snuff it, or your own death cry.



• *There aren't too many rules to learn*

Considering this is a shareware program, you would have to be mad to miss out. Especially as "subscribers" receive a bundle of goodies including a free game. *Llamatron* is a genuinely outstanding offer.

I advise all ST shoot-'em-up freaks to check this baby out without delay.

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LOOK LOOK

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Note that Amiganuts United hold the worldwide copyright to this program and it will not be available through any other source

The program is of such high quality that we could easily have put it on sale for £50 or more!
However, Amiganuts and the Author, Teijo Kinnunen, want it to be within the reach of all Amiga enthusiasts, so we are keeping the price down.
You can purchase this great program for only £10.00, within Europe, (£15.00 rest of the world). The price includes return post and packing.
Payment in pounds sterling only, if ordering from overseas, send a bankers order/Eurocheque etc. (Credit card orders will not be accepted).
Because of the exceptionally low price, it comes without glossy packaging and one page of printed documentation. (Instructions on the disk)
Please note that you are advised not to purchase this program if you only have the basic half-meg, as it does hog a lot of memory.
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SUPER AMIDASH

There has been quite a surge in recent months of *Boulderdash* clones. Now Amiganuts has made its contribution to this genre with *Super Amidash.* Basically, it involves running around a creature filled cavern, avoiding monsters and collecting jewels.

The nice thing about the original *Boulderdash* was the suspense and tension. Thankfully, this atmosphere has been successfully maintained in the all-new PD offering.

The caverns you encounter are full of rocks and earth. Digging away the earth, if it is supporting a rock, causes that rock to fall. This can cause a fairly huge chain reaction. Rocks can fall all over the place, possibly killing or trapping your cute little sprite. As you might imagine, this not a good thing.

The graphics are nice and colourful, although hardly spectacular. Sound suffices and the whole thing is well presented.

What makes the game worthwhile however, is the fast, smooth gameplay. Even if you've tired of *Boulderdash* it's still well worth a look, just because of its outrageously addictive qualities. I could hardy put the blasted joystick down. It's one of those games which you just have to beat and I suggest that every Amiga owner should have one.

INCREDIBLE COLOURS

A rather interesting Amiga utility turned up this week, courtesy of Seventeen Bit Software.

Called *HamLab*, this particular program come overcome a very difficult problem. Imagine you have saved an IBM PC VGA screen, with the full 256 colours. Now, there is no way to port this over to an Amiga and fiddle about with it. The Amiga can display 4096 colours, but only in Hold and Modify mode.

This graphic mode is very difficult to work with, and trying to edit files saved from other machines is tough.

HamLab performs this duty with astonishing simplicity. Entirely icon driven, the most difficult part is getting the PC file onto an Amiga disc. There are several utilities available that will do the job most satisfactorily.

Once you sort out that problem, you can load the VGA piccie into *HamLab.* The clever little program then allows you to convert the 256 colour VGA pic into HAM mode. There are two ways to do this. TrueHAM allows editing, and modifications can be made to the image. DreamHam allows the picture to be displayed, but no changes can be made to the image. The picture and colour quality are considerably enhanced in DreamHam mode, and the images are very sharp indeed.

Still, the finished HAM version of the original VGA screen is perfectly adequate for all but the most extreme perfectionists. For those of you who have more computers and money than sense, it should also be noted that the same process can be performed on colour Macintosh images. Mac 2CX images for example, can be handled quickly and in much the same way. Mac colour screens also have 256 colours (depending on which card the machine sports) and are displayed perfectly.

A strange, but useful utility which is simplicity itself to use. And at that price (virtually nothing) who's complaining? ■

WHERE TO GO

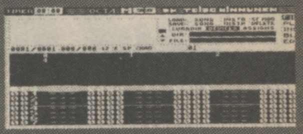
Seventeen Bit Software is fairly famous in Amiga PD, so write to:
Seventeen Bit Software, PO Box 97,
Wakefield, WF1 1XX. Tel. 0924 366982

For even more juicy Amiga Public Domain, contact Amiganuts United at:
Amiganuts United,169 Dale Valley Road,
Southampton, SO1 6QX. Tel. 0703 785680

If it's ST PD you want, then check out Caledonia PDL who can be found at:
Caledonia PDL, 250 Oldtown Road, Hilton,
Inverness, IV2 4PT. Tel. 0463 225736

ZOUNDS

AMIGA SOUNDS



• Octomed: simple sequencing.

Amiganuts sent in a really nice piece of sequencing software. It's called *Octomed*, an odd title, the reasons for which will be explained shortly.

Octomed has all the usual sequencing features. It handles MIDI with consumate ease. The entire operating system is a very slick icon driven job.

The program really comes into its own when you use it to sequence samples. The samples can be, for want of a better word, sampled straight into the software. No mess, no fuss, just samples. The real beauty of *Octomed* is the reason for its name.

Octomed can handle eight samples at any one time. This means if you are using sampled instrument sounds, you can have eight channels running at once. The effect has to be heard to be believed, it sounds almost like a tiny little orchestra is throbbing away in your Amiga.

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700:	D-COPY V1. Excellent copier program. Full instructions	£2.50
724:	6 GOOD DEMOS + A GAME. The Questor Cowboy anim is good	£1.50
728:	UTILS. The famous Boot-Shop, Boot-Kit + others	£2.50
741:	NorthC V1.3. (2 disks), C Assembler etc. by Steve Hawtin	£5.00
907:	SNAKES & LADDERS. Excellent game for the family. 1 Meg	£2.00
1018:	THINKAHEAD. A real mind boggling game from the clones	£2.00
1023:	The excellent AMY VERSUS THE WALKER animation. 1 Meg	£1.50
1032	AMI-FX 3. Third in this fractal series. (3 disks) 1 Meg	£4.00
1040:	BALLOONACY. An excellent game for the children. 1 Meg	£2.00
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243:	THE DEFINITIVE JARRE SHOW. Good music & pics by HCC	£1.50
265:	HOW I CAUGHT AND DESTROYED A VIRUS (Animation). 1 Meg	£1.50
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967:	STEREO 3D demos by Exit. (Great! but needs 3D glasses)	£2.00
1021:	AT THE MOVIES animation with sound efx. 1Meg	£1.50
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SOFT DRIVING

Route planning software can be entertaining as well as productive. Keith Pomfret gets behind the wheel and test drives Autoroute Plus 4 , the latest version of the program that started it all . . .

Route planning software allows you to choose where you are going from, where you'd like to go to and then does the hard work like calculating the best route for you to take.

Autoroute Plus 4 offers a host of new bells and whistles and brings the program into the era of pull down menus and mouse control. The basic package includes a digital map of Britain, France or mainland Europe and the program to calculate routes in miles or kilometres and cost them in any currency for various vehicles. When working out routes the program tries as many as the memory of your PC will allow and highlights the quickest and shortest ones. A version is also available that works on a network.

SUCCESS STORY

When software house NextBase introduced *Autoroute* on the PC in 1987, it was an immediate success. It offered a quick and reliable way of calculating a route. In its original and basic form it offered an entertaining program that did a useful job, was state-of-the-art at the time and would run on a twin floppy drive PC.

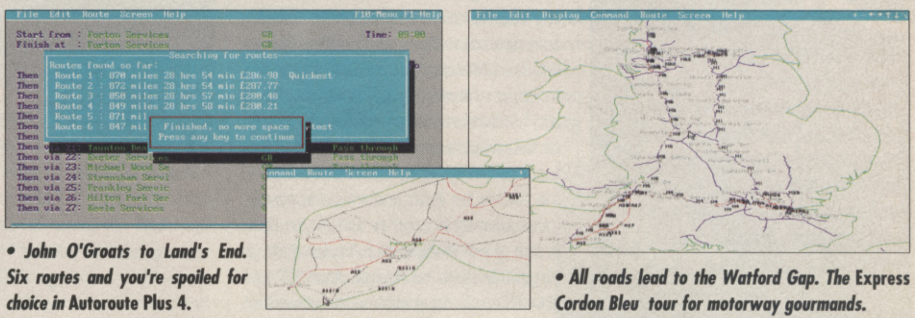
As people asked NextBase for more features an updated *Autoroute Plus* was introduced. This was designed so that various add-on modules could be used to customise the program to the users individual requirements. *Autoroute Plus 4* is the logical development of this route planning software incorporating a radical rethink making it more user friendly and improving the display which is now white with the roads and features in similar colours to a road atlas. Mouse control and pull down menus make it easy to use so that a beginner can have the program running in minutes.

INSTALLATION

To install the program, you put a disk in the floppy drive and type HDINST. On-screen prompts take you through disk swapping while your hard drive takes in the data.

After it has installed the main program, it asks if you have any modules or the like to load. If you think the job of installation is done and type 'N', you will get a surprise – there are no maps and the program is unusable. The maps have to be installed with all of the extra modules and so must be considered an extra. It's a pity that a professional program has such a hiccup in the installation procedure. However, the instructions in the manual included the extra disks, but the on-screen prompts were not as lucid as they could have been.

All of the modules can be installed in the same way from the same menu and the total time taken to install *Autoroute Plus 4* with UK and European map data and a couple of extra modules was around 20 minutes from opening the box to firing up the program.



```
File  Edit  Route  Screen  Help                                F10-Menu F1-Help

Start from  : Forton Services               GB                  Time: 09:00
Finish at   : Forton Services               GB
         ────────────────Searching for routes────────────────
         Routes found so far:
Then      Route 1 : 870 miles 28 hrs 54 min £286.98  Quickest
Then      Route 2 : 872 miles 28 hrs 54 min £287.77
Then      Route 3 : 858 miles 28 hrs 57 min £288.48
Then      Route 4 : 849 miles 28 hrs 58 min £288.21
Then      Route 5 : 871 mil
Then      Route 6 : 847 mil   Finished, no more space        test
Then                          Press any key to continue
Then via 21: Taunton Dea                                     Pass through
Then via 22: Exeter Services                GB               Pass through
Then via 23: Michael Wood Se
Then via 24: Strensham Servi
Then via 25: Frankley Servic
Then via 26: Hilton Park Ser
Then via 27: Keele Services
```

Command Route Screen Help
File Edit Display Command Route Screen Help

• John O'Groats to Land's End. Six routes and you're spoiled for choice in **Autoroute Plus 4.**

• All roads lead to the Watford Gap. The **Express** *Cordon Bleu tour for motorway gourmands.*

GOING PLACES

Eating as a life-science coupled with a healthy dislike for Cordon Bleu had us planning the food fantasia of the nineties. To put *Autoroute Plus 4* through its paces, a trip round 31 of Britain's motorway cafés was planned.

As a second course (but not one the editor would bankroll) a similar trip around mainland Europe pushing *Autoroute Plus 4* to its 99 stop over limit was tried. The program allows you to break your journey for any length of time, at up to 99 places. It can also take into account the working day and restrict travel to specific hours.

Back to the first course. The journey started at Farthing Corner (near Maidstone) on the M2 and finished at Toddington (near Luton Airport) on the M1. Normally this straightforward 80 mile motorway journey would take no more than an hour and 15 minutes. With a round trip and a detour to call and wave at the motorway cafés, though, it was destined to take a little longer. Allowing long enough time to rush from the car to the restaurant and take a longing look at the motorway fayre, the whistle stop tour of the cafés was timed at 16 hours and 30 minutes. This was a simple enough route for the program to calculate and the office Goldstar 386 PC churned out a route in seconds. We decided to give it something a bit more complicated – John O' Groats to Lands End should put it to the test. On the first attempt using the European Gazetter a bug was discovered which had us catching ferries and travelling the length of Ireland to get to Cornwall.

A call to NextBase's marketing director, Simon Anthony, confirmed that there was a problem in the early review version of *Autoroute Plus 4* that we'd been given but that it had been fixed in production versions.

Another useful feature in *Autoroute Plus 4* is a menu of "slider" controls that allows you to make your choice of preferred roads. While calculating John O'Groats to Lands End, there were a lot of motorways on what was supposed to be a scenic drive A preferences feature available from a pull down menu allowed us to change the way the route was calculated to avoid motorways and A roads. With motorways the journey was 875 miles and took nearly 16 hours. The pretty route was 28 miles further and took 36 hours to drive.

AT THE END OF THE ROAD

Autoroute Plus 4 is a well specified core program that can be configured and upgraded to the requirements of most users. With the European database and a few modules, it can eat a serious lump out of the budget, but any company planning reps rounds or deliveries for will save the cost in saved fuel and ficticious distances.

Up until last year *Autoroute* had the territory to itself, but with the advent of *Navigator* from DPS and other PC route planners still to come, it is now holding its own in an increasingly competitive field. ■

SYSTEM STUFF

- 512K memory
- DOS 2.2 or greater
- One floppy and a hard drive with 2Mb of spare space
- Supports VGA, EGA, CGA, Hercules, Super VGA.
- Printer drivers for HP Laserjet, Postscript, Epson, Canon LBP-8
- Microsoft or Mouse Systems mouse

HOW DOES IT RATE?

FOR
- ▲ Intuitive
- ▲ Versatile
- ▲ Easy to use
- ▲ Quick

AGAINST
- ▼ Copy protected
- ▼ Can be expensive with all of the modules added
- ▼ Mouse control jerky at times
- ▼ Manual could be better and installation awkward

HOW MUCH WILL IT COST?

Autoroute Plus 4 (not including VAT)		MODULES		Hydrography (GB)	£49
UK	£345	Gazeteer editor	£145	Railways and Grid	(Free on registration)
France	£345 +	Optimisation	£145		
Europe	£945	Isochrone planner	£295	UPDATES	
	including gazetteer editor and optimisation module	Network pack	£295	GB	£49
		Admin boundaries (UK)	£49	France	£49
		Postcodes	£195	Europe	£100

BUBBLING UNDER

From Simils, the team which brought the MiG-29 Fulcrum to the home computer, comes a simulator of the AV-8B American Harrier in the form of *Harrier Assault.* The boys are putting to good use their work on Harrier software at British Aerospace to produce an accurate flight model and are letting their imaginations run riot to provide a role playing scenario of sorts in the form of a combat simulation environment. *Harrier Assault* should be ready for release at the end of 1992 through publisher Domark.

- In a more sporty and licensed vein, Domark has the opportunity to convert Taito' coin-operated *Euro Football Champ* to the home computer systems. EFC's most interesting innovation is being able to hit the opposition while the referee's back is turned. A team to convert EFC has yet to be determined, but a mid-1992 release has been set.

- Yet another pseudo-sequel to *Tetris* (see review) has made it to the home computer, namely ...*Tetris III*, perhaps better known as *Faces.* The title almost says it all – slices of famous and not-so-famous faces are assembled instead of blocks. Spectrum HoloByte has just released *Faces* in the States and there's every chance of it appearing on these shores some time this year through Infogrames.

- Move over Mario Brothers – here comes *Sonic The Hedgehog.* Sega reckons that Nintendo's Mario and Luigi will be knocked off their mantle when its new spiky saviour is launched on the Sega MegaDrive console sometime this Summer.

Initial reports suggest that the company has come very close to its ideal, with its vibrant visuals, detailed arcade-style action and a dreamy control system to boot. And it looks as though this good news is set to spread all around as it's rumoured that US Gold is set to acquire the licence to convert this potential blockbuster to the home computer formats.

Games Week

Once again Gary Penn has been shaking the software tree and gathering its fruit for your delectation and delight . . .

If you frequent an arcade you may have caught a glimpse of – or even played – an interesting Othello-inspired affair called ***Ataxx***. You may even recognise it, for apart from a few tiny cosmetic changes ***Ataxx*** is in fact a coin-operated incarnation of a never-released Mastertronic budget title called ***Infection***. Mastertronic has not disclosed why ***Infection*** wasn't released, though as fate would have it ***Infection*** did in fact resurface in a slightly bastardised form in the States as ***Spot*** featuring the eponymous character used to sell 7-Up. ***Spot*** is due to be released at full price through Virgin this June on Amiga, Atari ST and IBM PC and compatibles. A conversion of ***Ataxx*** is not on the cards.

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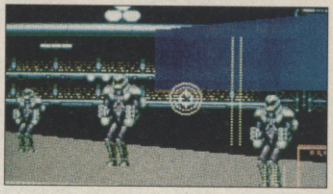

One of many in Core Design's continually expanding batch of forthcoming releases is ***Retro***, a future sport loosely described as "a two-player sort of Speedball in three dimensions" by a spokesperson. Utilising a sprite as opposed to polygon-based display, ***Retro*** is being put together on the Amiga by programmer Steven Northcott (who converted ***Driller*** and ***Darkside*** to the Amiga) and artist-designer Simon Phipps (who did his 'stuff', as it were, for ***Switchblade*** and ***Rick Dangerous***). A June release date has been proposed on both Amiga and Atari ST.

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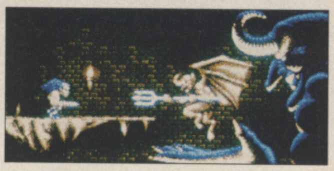


System 3's ***Last Ninja*** returns for a third outing on the 16-bit machines in – heavens – ***Last Ninja III***. Projectyle programmers Eldritch The Cat are responsible for these latest incarnations, which are to all intent and purposes more of the same – that's to say, a blend of arcade adventure and simplistic fighting action presented from an isometric perspective – but with a few enhancements. ***Last Ninja III*** is already available for the Commodore 64 on cartridge. Priced at £25.99 the Amiga and Atari ST versions are due for release at the beginning of June. A version for the IBM PC and compatibles is set to appear before the year is out. ■

PLAYING TIPS

GEM'X

Demonware

AMIGA, ATARI ST Play away on the later levels by entering any of the following codes...

MINE	CODE
B	EARTHIAN
C	KENICHI
D	INOKUMA
E	BURAI
F	BADMAN
G	NETWORK
H	YOKOHAMA
I	EXACT
J	X68000
K	TURRICAN
L	REDMOON
M	CAMPAIGN
N	MEGAMANN
O	SYVALION
P	FMTOWNS
Q	CHIERIE
R	GAMERION
S	ZAWAS

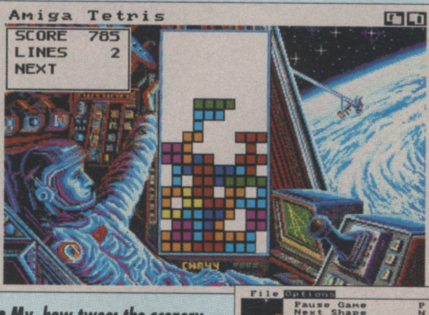
GAMES REVIEW

TETRIS

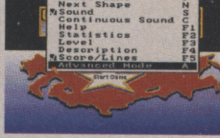
Infogrames • Amiga, Atari ST £19.99
IBM PC & Compatibles £24.99
Planned Versions: Possibly Amstrad CPC, Commodore 64, Spectrum

Yes, it's been out and about on practically every format under the sun since 1987 and has gone on to become an often-imitated world-wide success story. However, it's almost impossible to buy a copy of the 'original' Mirrorsoft *Tetris* these days and it's only now readily available on the console and hand-helds.

It's possible to pick up many variations on the theme through the Public Domain. So why should Infogrames produce a new version? It hasn't as such. This latest version of *Tetris* comes from Spectrum HoloByte and is being marketed here by Infogrames in the same way it handled *Tetris*' pseudo-sequel (one of many in fact) – *Welltris.* Problem is, there's nothing remotely impressive about this new *Tetris*, which bears a remarkable similarity to the Apple Macintosh version. These are without doubt the worst versions of this classic test of hand-eye co-ordination yet seen. The fact that there are no variations on the theme is forgiveable as it's possibly a licensing restriction. What is inexcusable is continual disk accessing, even on a 1Mb machine, and worse still it actually plays like a brick. The control is keyboard only, which would be fine if the keys were redefinable but they aren't, and it's frustratingly sluggish to respond to boot. The only vaguely interesting feature is the history of *Tetris.* What a bummer.



• My, how twee: the scenery is changed whenever you advance a level. What a shame it does absolutely nothing to improve the gameplay.



• There are more than enough options to keep you entertained. IWhat a shame it does absolutely nothing to improve the gameplay either.

PLAYING TIPS

CHUCK ROCK

Core Design

AMIGA

When the band begins to play, why not accompany them with the sound of tapping keys by typing any of the following (including spaces). Note that it's best to press the 'Esc' key before you enter any of the cheats as this cancels out any previous keypresses.

FAST AINT THE WORD
UNCLE SAMS
ITS FAIRY BOWBELZ
SHE LOVES CLEANING WINDOWS
LIFE IS MY DREAM

Entering any of the above makes Chuck invincible with an unlimited supply of energy.

TURN FRAME

Now you can go to the level of your choice by pressing a key from '1' to '5' during play.

MORTIMER

Allows you to select zones within levels during play via the function keys.

TOP 10 SIXTEEN-BIT GAMES

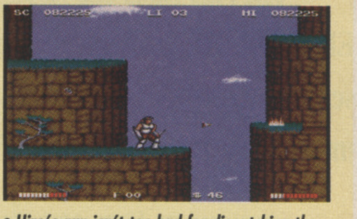
THIS WEEK	LAST WEEK	TITLE	PUBLISHER	MACHINE
1	9	*Armour Geddon*	Psygnosis	AG
2	2	*Lemmings*	Psygnosis	ST AG
3	4	*Fantasy World Dizzy*	Code Masters	ST AG
4	8	*Steve Davis World Snooker*	CDS	ST AG
5	10	*Killing Cloud*	Mirrorsoft	ST AG
6	1	*Gods*	Renegade/Mindscape	ST AG
7	7	*Chuck Rock*	Core Design	ST AG
8	3	*Defender of the Crown*	Mirror Image	ST AG PC
9	6	*Little Puff*	Code Masters	ST AG
10	5	*PGA Tour Golf*	Electronic Arts	ST AG PC

ST = Atari ST AG = Commodore Amiga PC = IBM PC or compatible OT = Other
Chart compiled by Gallup. © European Leisure Software Publishers Assoc.

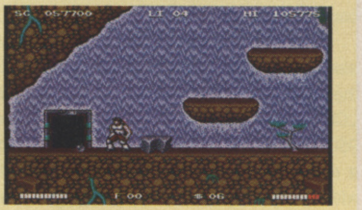
SWITCHBLADE II

Gremlin • Amiga & Atari ST £25.99
Planned Versions: Possibly Sega MegaDrive

Console-based arcade-style action seems to be all the rage these days. So much so that they are rubbing off in a big way on designers of computer entertainment. With any luck, some day soon we will see the likes of something along the lines of the *Super Mario Bros* series appearing on 8-bit and 16-bit screens. Or maybe not. *Switchblade II* isn't like *Mario Bros*, but it does have a distinctly console-esque look to it. There are platform arrangements to negotiate and alien types to shoot and some quite different forms of improved firepower to collect. The shooting and jumping frolics are nothing out of the ordinary, but it's all rewarding enough, partly because control of the hero, who's actually called Hiro, is intuitive, and partly because the game is so asy-going. *Switchblade II* won't change your life overnight, but there's enough here to keep you amused.



• Hiro's gun isn't too bad for dispatching the enemy. But there comes a time in every hero's life when he needs a little more... oomph. Having collected some cash Hiro can pop into a shop and buy some weapons.



• Hiro goes a-shootin' an' a-jumpin' in Switchblade II on the Amiga.

HELP! HELP! HELP! HELP! DO ME A LEMON HELP! HELP! HELP! HELP!

Bad luck, eh? But fear not, for we may well be able to help – with anything game-related anyway. Simply jot down as much detail as possible on exactly what the problem is and send it to DO ME A LEMON, Games Week, New Computer Express, 30 Monmouth Street, Bath, Avon BA1 2BW.

Maybe it's a certain problem that's causing you to scream. Maybe it's a certain screen that's causing you problems. Or perhaps you simply need a cheat mode. Whatever the score, personal replies are out of the question, but we will endeavour to answer as many queries as possible through these pages. And don't forget to mention the game's title (look, it happens). This week's thorn is lodged in the side of Steve Baker of Eastbourne. He's stuck on Mission Six of Vektor Grafix's *Killing Cloud* because he has no nets or pick up vehicles and wants to know why. Well, Steve, according to Vektor's Pete Featherstone the problem could be down to one of two reasons: either you have run out of nets completely or the vans have run over the pods that were placed. Hope that clears the mist of confusion.

PREDATOR 2 THE HUNT CONTINUES...

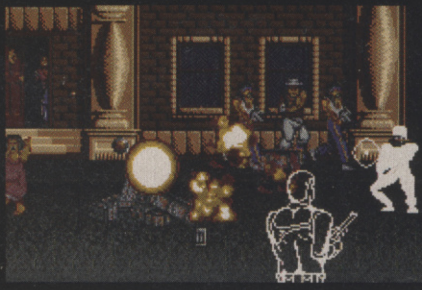
Imageworks
Available Now: Amiga, Atari ST, IBM PC & Compatibles (£25.99), Amstrad CPC, Commodore 64, Spectrum (Cassette £10.99, Diskette £14.99)
Other Versions Planned: None At Present

Phew! What a scorcher! A futuristic Los Angeles is in the grip of a mighty hot heatwave and gangs of Colombians and Jamaicans are fighting it out on the streets for control of the lucrative drug scene. And to add fuel to the fire, an alien hunter known as the Predator has just arrived for a spot of people-skinning fun. Enter *Lethal Weapon* star Danny Glover as hard-man cop Harrigan, the only man capable of cleaning up this town. That's *Predator 2* for you, currently doing the rounds countrywide in cinemas and home computer form.

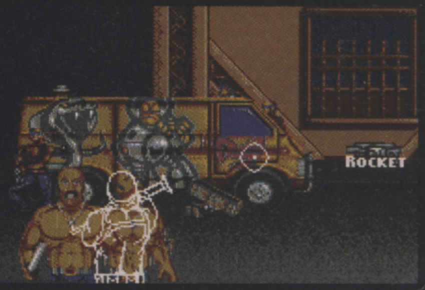
Spread thinly over four levels which represent prime cuts of the film's story, *Predator 2*'s magnetic media action is *Operation Wolf* blasting plain and simple. As the scenery scrolls on by, dozens of gun-toting members of the drug-barons' gangs spring forth and let rip with bullets and grenades, and innocent bystanders run around like headless chickens. Taking control of a wireframe form of Harrigan you try to shoot the bad guys without hitting the honest citizens. It's as simple as that. That's a lie actually, for more often than not there are so many rotten apples on screen that it's difficult not to shoot the Good People. Worse still, the proceedings tend to slow down somewhat and life gets bitchier.

But what of the Predator itself? Well, you don't actually get to take it on until the final level – it's usually found lurking in the background from where it occasionally picks off a bad egg or two. Such is life.

Predator 2 isn't particularly rewarding to play, which is a great pity as the potential of the horizontally elongated playfield to represent peripheral vision has been wasted. I haven't seen the film yet, so maybe there just isn't enough to it to inspire gripping gameplay. Maybe licensing restrictions are to blame. Whatever the reason, it's not going to make this baby any more remarkable or interesting.



• Danny boy does his best to keep the bad boys at bay in the Amiga version of Predator 2.



• Harrigan dishes out doses of death with a surprisingly weak .45 Magnum pistol. At least it has an unlimited supply of ammunition – the four more powerful weapons found along the way don't.

DIGITAL DIARIES

Electronic organisers are more than just fancy Filofaxes with LCD screens. Dave Golder checks out whether the Casio Digital Diary can do more than just keep track of lunch appointments.

Where once the Filofax ruled, the electronic organiser is now muscling in. Capable of holding a volume of information that would require a leather binder the size of suitcase to contain it in written form, the new generation of hand-held computers has the added advantage of being able to communicate with PCs.

The Casio Digital Diaries are the latest range of electronic organisers to hit the market. The SF-9500 is the top model with 64K RAM and a 32 by 6 character LCD screen. About the size of a cigar case, the SF-9500 is a stylish-looking product with smooth contours, a matte, dark grey case and a well laid-out keyboard with subtle hints of chrome. Weighing about nine ounces it sits very comfortably inside a jacket pocket.

The Qwerty keyboard has raised, well spaced out keys and while it is still easy to accidentally press two keys at once (a problem with most hand-helds because of their size) it seems to happen less with the SF-9500 than most.

One annoying feature of the SF-9500 is that you can only set the tilt of the screen at two angles; about 45 degrees or completely flat. If you are using the unit on a desktop in a bright room where the light is shining at just the wrong angle this can make the screen very difficult to read.

MAKING LISTS

The modes included as standard on the SF-9500 are the equivalent of the different sections of a Filofax. There are modes for setting up a telephone number and address list, compiling a business card list, writing memos and noting down appointments. The Digital Diary scores over its paper counterpart by also providing a calculator and a clock showing all the world's time zones.

Entering new information and recalling existing data is extremely simple, the whole process being very user friendly. The accompanying manual explains everything clearly with useful diagrams and lists of the key presses you have to make.

The procedures for entering and recalling data are roughly the same in all modes, so once you have discovered how to cope with, say, setting up and using the telephone list, learning how to use the other modes will be simple. It should take just a couple of hours to become fully conversant with the organiser.

The SF-9500 can hold up to 2,660 telephone numbers,1,860 appointments and the internal calendar runs up to 2099; imagine the size of your Filofax binder if you tried to note down that lot.

But if you do need to store information externally the unit incorporates an IC card system; the equivalent of floppy disks for PCs. You can use them to store information you have input into the organiser, but equally they can be used to run software.

The software available for the SF series is bit limited to spelling checkers and directories of legal and medical terms, but Casio is promising that "quite a few goodies of a more practical nature should be ready later in the year".

CASIO
03-347-4011
PRODUCT DIVISION

• The Casio Digital Diary SF-9500: it looks good, but is it attraction more than aesthetic?

TRANSFERRING DATA

Two peripherals already available, however, are Dataprint and Datalink. One of the major problems with hand-held computers is trying to transfer data to other hardware. Both these packages are specifically designed to make such operations on the SF-9500 simple and painless.

Dataprint allows you to print out data from the organiser on any centronics interface printer. The package consists of nothing more than a lead which runs from the SF unit to the printer. Once connected all you have to do is select the print mode on the organiser to create hard copy.

You can print individual entries, such as one business client, or all the data stored in a certain mode, ie the complete telephone list. You can also print out calendar months with the days when you have appointments marked out. The only drawback is that you cannot control the positioning of the printout on a sheet of paper from the organiser; it always starts at the extreme left.

Datalink allows the SF-9500 to send data to, and receive it from, a PC. The package comprises the connecting cable and the Datalink software for the PC (supplied on 3.5-inch and 5.25-inch disks). The actual software can be run on a PC without connecting it to the SF-9500; it produces a simulation of the operations available on the organiser on the PC, complete with pull down menus and full colour. But once the PC and organiser are linked, data can be easily transferred between the two.

This requires little more than plugging in the connecting cable and setting the parameters on the PC. All the necessary information for baud rates, parity , and so on is clearly listed in the manual, and the whole operation should take just a couple of minutes.

Unfortunately, you cannot transfer individual items of information, only groups, such as all the entries listed in the telephone list. Also you must make sure to lock the information on the receiving unit, whether it is the PC or the organiser, otherwise any incoming data will overwrite any existing data. Locking data is as simple as pressing a function key, but it is all too easy to forget and lose some important information.

The Casio Digital Diary SF-9500 compares very favourably with other electronic organisers, both in terms of price and functions. But if you are looking for something that looks stylish and is functional then this is the organiser for you. ■

The SF-9500 retails for £195. The Digital Diaries range starts at £69.99, though the cheapest model which can be linked with a PC (the 7500) is £120. Casio can be contacted on 081-450 9131.

THE COMPETITION: 64K RAM ORGANISERS

AGENDA £199
The AgendA has the advantage over the Digital Diaries in that it has limited word processing capabilities, but it is slightly heavier. There is a wide range of peripherals and software for the AgendA, including a fax/modem card, facilities to link it with PCs and Macs and a spreadsheet. Enhanced PC comms software is due out at the end of this month. AgendA is available from Microwriter, contact 061 685 0300.

SHARP IQ £174
About the same size and weight as the Digital Diaries, The Sharp IQ has a wide variety of software cards available from around £50 to £100. These include printer cables and PC comms links, as well as language cards and extra memory.

PSION ORGANISER £190
The Organiser is a lot bulkier than the Digital Diary, but the main difference is that it does not have a Qwerty keyboard. It has diary, memo, alarm ,etc, facilities built in and is well supported with software.

SO HOW DOES IT RATE?

POINTS FOR

▲ Very compact and stylish, but still resilient.
▲ Easy to read LCD screen.
▲ Simple to install and use peripherals for linking up to printers and other PCs.
▲ It features various modes, such as business card and telephone directory, already set up and easy to use.

POINTS AGAINST

▼ Hinge on the screen is a bit floppy and can only be set in one position
▼ You can only transfer groups of data to a PC, not just one individual entry.
▼ It is easy to hit the wrong keys.
▼ Limited software (at the moment).

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SEVENTH HEAVEN

Over two years in development, the Apple Macintosh's new System 7 operating system has finally arrived. Ian Wrigley takes a close look at the front-end to end all front-ends...

It's been a long, long time coming but Apple finally released System 7 to a waiting world this week. And the early indications are that it has been well worth the wait. Apple has made what many see as the decisive move in the user interface battle, guaranteeing that it will be years before the likes of Microsoft's Windows can claim to offer the same sort of functionality.

For until Windows appeared – and, realistically, until Windows 3.0 hit the scene – PCs could rightly be seen as coming a very poor second to the Mac in the user interface battle. Windows 3 changed that to some extent – Mac users still claimed that their machine's interface was far superior, but at least PC users had something to argue with. So, just how much better is System 7 than Apple's previous operating systems and is the Mac once more firmly at the forefront of the user interface race?

The first thing that you notice when booting up a Mac running System 7 is that the interface's visual look has changed somewhat. While not going overboard, the designers have decided on a semi-3D appearance, which make things like scroll bars and zoom boxes look much better than the old-style, black-and-white versions. Unfortunately, users of mono Macs – like the Classic, Plus and SE – will have to make do with the old look – the new appearance is only for those with greyscale or colour monitors. And, sadly, the new look does not extend as far as the dialogue boxes – they are just the same as they always were; at least, they are at present, although it's up to programmers to decide if they remain that way or if they will change to fit in better with the new look of the rest of the interface.

The Mac now permanently runs a new version of MultiFinder, called the Process Manager. MultiFinder was Apple's solution to some form of multi-tasking on the Mac, and was loved by some users and hated by others. The Process Manager is a far more sophisticated beast and allows a far higher degree of multi-tasking – but only for those programs which make use of its facilities, which means that those currently available are unlikely to multi-task any more than they do at present.

UP UP AND AWAY

To fit in with the image of the Macintosh as a user-friendly machine, System 7 has something called 'Balloon help', which can be switched on at any time, simply by selecting a menu choice from an always-present icon on the menubar. When active, balloon help is context-sensitive: small 'speech bubbles' appear wherever your cursor points, telling you what each item does – not only menu choices, but also things like close and zoom buttons, scroll bars, the wastebasket and so on. New programs written to take advantage of System 7 will have support for balloon help built in, so that, for example, turning help on in a paint package will enable the user to point to the painting tools and get a description of exactly what each one does without having to resort to the manual all the time.

Some programs already implement a context-sensitive help system of this kind, but Balloon help will mean that all applications will, in future, implement help in the same way – another example of Apple's philosophy that all programs should appear as similar as possible to the user, to reduce the time spent learning a new application.

GET CONNECTED

An area that Apple has targetted very strongly with System 7 is networking. This is an area where Macs have always been prominent – unlike PCs, which require an extra plug-in card to network together, Macs have a built-in network called LocalTalk. But until System 7, users had to use either free software such as Public Folder or Apple's own AppleShare software to take advantage of the networking. But now, each Macintosh on a network can appear to other users as a fileserver, meaning that files and even applications can be shared by any Mac on the network.

A Mac's user can decide which files or folders should be shared, and can allow only certain users to connect to them, password-protecting some or all of the files. And all this comes at no extra cost – Macs are automatically networked together simply by connecting them to a printer; there's no extra cable to buy, and no interface cards required.

DATA TRANSFER

When the Macintosh first appeared, Cut and Paste were fairly radical concepts – suddenly, users could transfer data from one application to another without worrying about file compatibility and the like. System 7 takes this idea a step further with Publish and Subscribe – which can be likened to 'live Cut and Paste'.

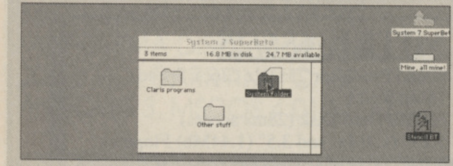
Rather than copying data from an application to the clipboard, a user can choose to 'publish' a selection of data from an application. Any other application which supports the protocols (and almost all new applications will) can then 'subscribe' to the data, which appears rather like it would if it were pasted from the clipboard. But if the data is changed in the publishing application, that change is echoed through to the subscribers, meaning that the data is always up to date. So, for

INSTALLING FONTS

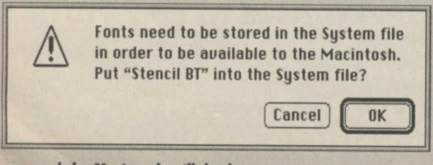
One of the major complaints that Macintosh users have always had is that installing fonts is such a complicated business. You had to put the printer font loose into the System folder, along with the afm file if you had any applications which used it. Then came the nightmare of Font/DA mover: Would the font install, or would the Mac crash – sometimes damaging the System file itself so that it had to be re-installed?

System 7 cures all these problems with the introduction of a 'smart' system folder, an easier way of installing fonts, and best of all, the introduction of the new TrueType font technology. Installing fonts is now a simple, one-step process: just drag the font to the System folder, and the Mac will do the rest.

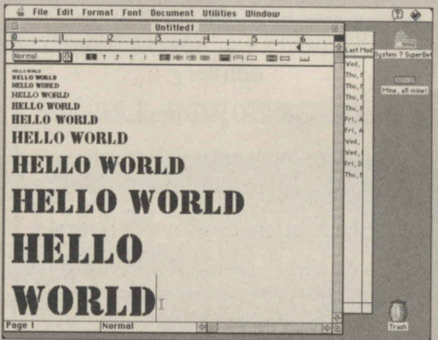
If you are still using PostScript fonts, you also still need to put the printer fonts into your System folder, but you can at least put them into a sub-folder, keeping the System folder tidy.



• Just drag the font to the System folder...


Fonts need to be stored in the System file in order to be available to the Macintosh. Put "Stencil BT" into the System file?

• ...and the Macintosh will do the rest.



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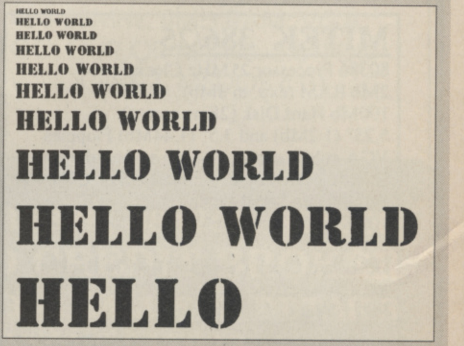
HELLO
WORLD

• True type fonts are smooth at any size on the screen...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HELLO

• ...and smooth at any size when printed out.

SYSTEM 6 VERSUS SYSTEM 7

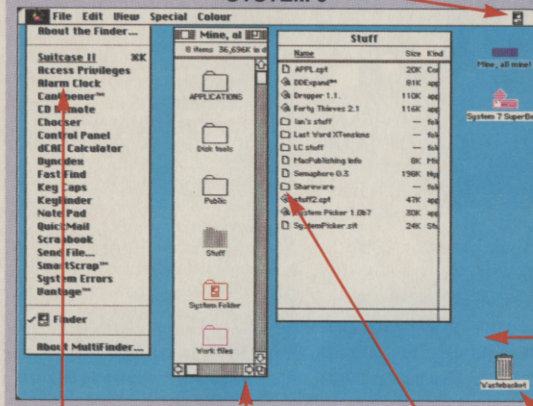
MultiFinder must be explicitly selected

In System 7, the colour menu has been replaced by 'label', although it does exactly the same thing: it allows the user to assign a colour to any file or folder

Ballon help is accessed from this icon

The Process Manager (the new version of MultiFinder) is permanently 'on'

SYSTEM 6


File Edit View Special Colour
About the Finder...
Suitcase II ⌘K
Access Privileges
Alarm Clock
CanOpener™
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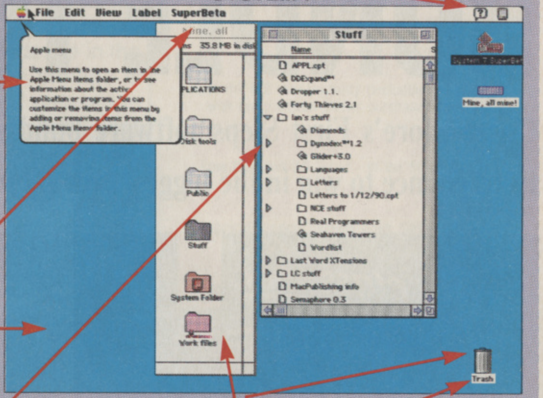
Chooser
Control Panel
dCAD Calculator
Dynodex
Fast Find
Key Caps
KeyFinder
Note Pad
QuickMail
Scrapbook
Send File...
SmartScrap™
System Errors
Vantage™
✓ Finder
About MultiFinder...
Mine, al
8 items 36,696K in d
APPLICATIONS
Disk tools
Public
Stuff
System Folder
Work files
Stuff
Name
Size
Kind
APPL.cpt
DDExpand™
Dropper 1.1.
Forty Thieves 2.1
Ian's stuff
Last Word XTensions
LC stuff
MacPublishing info
Semaphore 0.3
Shareware
stuff2.cpt
System Picker 1.0b7
SystemPicker.sit
Mine, all mine!
System 7 SuperBet
Wastebasket

Context-sensitive balloon helps guide the novice around the System. The Apple menu has also changed radically (but we can't show you as our screen grabber is incompatible with System 7)

In the release version of System 7, this menu will be called Special

Under both Systems 6 and 7, the Mac's desktop colour can be defined by the user

SYSTEM 7


File Edit View Label SuperBeta
Mine, all
35.8 MB in disk
APPLICATIONS
Disk tools
Public
Stuff
System Folder
Work files
Stuff
Name
APPL.cpt
DDExpand™
Dropper 1.1.
Forty Thieves 2.1
Ian's stuff
Diamonds
Dynodex™1.2
Glider+3.0
Languages
Letters
Letters to 1/12/90.cpt
NCE stuff
Real Programmers
Seahaven Towers
Wordlist
Last Word XTensions
LC stuff
MacPublishing info
Semaphore 0.3
System 7 SuperBeta
Mine, all mine!
Trash

Apple menu

Use this menu to open an item in the Apple Menu Items folder, or to see information about the active application or program. You can customize the items in this menu by adding or removing items from the Apple Menu Items folder.

Only DAs can appear under the Apple menu

Windows have a strictly 2-dimensional

Only one level of files can be shown

A hierarchical display of files and folders is now possible – clicking on the small arrowhead produces a nested display of files.

Colour icons have been added to the System – as have 3D-look windows

In the States, the wastebasket – where files and folders to be deleted are dragged – is called the Trash, as it is in our beta copy of System 7

Files and folders can now be 'shared' among Macs on a network

instance, if figures from a spreadsheet were subscribed to by a graphics program to create a pie chart of the values, then that pie chart would always be accurate – changing the numbers in the spreadsheet would change the pie chart. Microsoft says that it will produce a similar facility in the near future – probably in Windows 3.1 – but Apple has got there first. Indeed, there are already some applications using Publish and Subscribe – notably Claris' new programs. Developers are being urged to implement Publish and Subscribe in their new applications and to upgrade existing ones; it won't be long before the majority of applications use this system to share data.

SMALL THINGS...

Some of the benefits of System 7 don't, at first glance, seem to be particularly spectacular. It's only after they have been used for some time that the true benefit becomes evident. For example, the Apple menu has changed radically. Whereas before only desk accessories could be accessed from the menu, now any application, file or folder can be set to appear in the menu, simply by placing it in the 'Apple menu items' folder. Also, desk accessories can now be launched simply by double-clicking on them – so there is no difference between DAs and applications as far as the user is concerned.

Any Mac with a memory management chip (which means most of them except the LC and the 'compact Macs' – Plus, SE, Classic and so on) can now take advantage of virtual memory. If you have a top-of-the-range Mac (a IIci or IIfx) and a large enough disk drive, you can fool your machine into thinking that it has a stunning four gigabytes of RAM to play with! For those with more modest needs, and a fair bit of hard disk space, a virtual 12 or 16Mb of RAM is no problem (although Apple recommends that you limit this at double your actual RAM size, so if you have a 4Mb Mac, don't set more than another 4Mb of virtual memory – because of speed considerations).

Even small things like the way lists of files are displayed have been improved. Any folder's contents can be displayed without actually opening another window, simply by clicking on the small arrow next to the folder; the display will then expand to show the contents of the folder.

THE FUTURE

System 7 means that the Mac's user interface is unquestionably the best available for small computers (the NeXT machine doesn't really fall into the 'small computer' category). Windows has a long way to go before it can even equal the new standard set by Apple, while interfaces like those on the ST and Amiga are left well and truly in the shade.

And it doesn't stop there. Rumour has it that when asked about the progress of System 7 over the last few months, programmers at Apple's Cupertino headquarters replied: "System 7? Hell, we're working on System 8 already!" ■

THE HISTORY OF SYSTEM 7 – AND WHAT'S NEXT?

System 7 was first announced over two years ago by Apple; since then its launch has been postponed numerous times due to 'technical difficulties' – indeed, few people actually believed the 13 May launch date until a few weeks ago when it became clear that Apple had announced the date to too many people for it to be postponed.

The programming is done by a team of software engineers at Apple's headquarters in Cupertino, California. The software teams are led by people known in Apple terminology as 'Software Evangelists'. Yes, this is a genuine job title, which dates from the days of Steve Jobs, Apple's co-founder, who wanted people to think of Apple and the Mac as 'a way of life', rather than just another company and product.

The release of System 7.0 is not, of course, the end of the story. The software teams will be spending the next few months tweaking the system as it goes through the inevitable releases 7.0.1, 7.0.2 and so on. Then attention will be turned to 7.1, which will contain a number of upgrades to features like Publish and Subscribe which will improve their functionality, as well as new features – one much-rumoured possibility is the inclusion of built-in electronic mail.

And, of course, System 8 is on the far horizon. Although not even officially acknowledged by Apple yet, it is inevitable that a new release of the System will occur at some time in the future. It's likely to be a couple of years before System 8 appears, but when it does it will contain features such as true, full multi-tasking and quite possibly built-in UNIX.

Watch this space for details...

MACINTOSH JARGON

APPLICATION: programs are known as applications in Mac circles.

DA: short for Desk Accessory. A DA is a mini-application which, prior to System 7, could only be run by accessing it from the Apple menu. Typically, things like calculators were DAs, since they can be easily accessed while another program is running. To some extent, MultiFinder made DAs less necessary. In System 7, a DA can be run by double-clicking it, in the same way as any other application.

DOCUMENT: Mac-speak for 'file'. Any file created by an application is known as a document.

FOLDER: a folder on the Mac is the equivalent of a subdirectory on most other computers. Files, applications and other folders can be placed in folders.

MULTIFINDER: the Mac's solution to multi-tasking. When MultiFinder is running, more than one application can be open at once.

WASTEBASKET: files and folders are deleted by dragging them to the wastebasket. Then, when 'Empty wastebasket' is selected from the 'Special' menu, the file is deleted.

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There's Logo too, a graphic and list processing language that uses a turtle to teach drawing on the screen. This version can talk too interacting with the user.

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1) What did O and A level stand for?
a) 'Opeless and 'Arrassed
b) Only and Also
c) Oratory and Astignated
d) Ordinary and Advanced

2) What computer language was used as the basis of the Amiga operating system's development?
a) Basic
b) BCPL
c) C
d) Belgian

3) What add-on could you use with a MIDI port?
a) A MIDI hi-hfi system
b) A vacuum cleaner
c) A synthesiser or sound module
d) A digital steam iron

4) What company is there a little of in all of us?
a) Crosby Stills Nash and Young
b) Private Shop PLC
c) Palethorpe's sausages
d) Commodore

Complete the following in a humorous manner in no more than 12 words:

The bit of Commodore in me is

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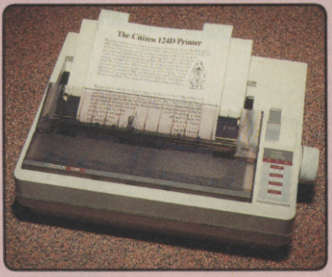

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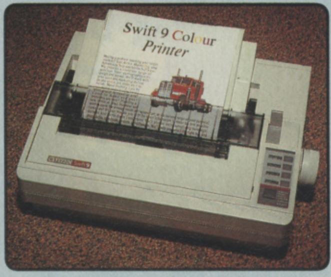

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FREE! COLOUR KIT

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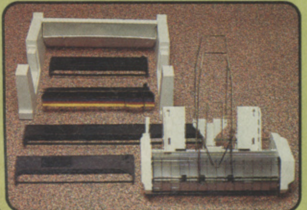

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